FACULTY OF ENGINEERING AND TECHNOLOGY

R.B.S. ENGINEERING TECHNICAL CAMPUS,

BICHPURI, AGRA

(Affiliated to Dr. A.P.J. Abdul Kalam Technical University, Lucknow)

PROJECT SYNOPSIS

On

"FOOD WASTAGE MANAGEMENT SYSTEM"

Submitted in

Partial Fulfillment of the Requirements for Award of the Degree in

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE & ENGINEERING

Under the guidance of:

Er. Saumya Tripathi

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Declaration

We hereby declare that the project work entitled "FOOD WASTAGE MANAGEMENT SYSTEM" submitted to Dr. A.P.J. Abdul Kalam Technical University Uttar Pradesh, Lucknow, is a record of an original work done by us under the guidance of Er. Saumya Tripathi, Dept. Of Computer Science & Engineering, Raja Balwant Singh Engineering Technical Campus, and this project work is submitted in the partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Computer Science& Engineering. The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree or diploma.

Date:

Place:

Anushka Jain (1500410011)

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Certificate

This is to certify that the project titled **"FOOD WASTAGE MANAGEMENT SYSTEM"** is the bona fide work carried out by **Anushka Jain & Harshita Dixit**, students of B Tech (CSE) of **Raja Balwant Singh Engineering Technical Campus Bichpuri, Agra**, affiliated to **Dr. A.P.J. Abdul Kalam Technical University Uttar Pradesh, Lucknow** during the academic year 2018-19, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology (Computer Science and Engineering) and that the project has not formed the basis for the award previously of any other degree, diploma, fellowship or any other similar title.

Er. Saumya Tripathi

Acknowledgement

We have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. We would like to extend our sincere thanks to all of them.

We are highly indebted to Er. Saumya Tripathi for her guidance and constant supervision as well as for providing necessary information regarding the project & also for her support in completing the project.

We would like to express our gratitude towards our parents & member of our faculty for their kind co-operation and encouragement which help us in completion of this project.
Our thanks and appreciations also go to our colleague in developing the project and people who have willingly helped us out with their abilities.

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Bachelor of Computer Science & Engineering

Final year (VII semester)

Abstract

This project is used to manage the plethora of wastage food in a useful way. Every day the people are wasting lots of foods. So we have to reduce that wastage problem. If anyone have extra foods they can enter their food quantity details and their address in that application and then the admin maintain the details of food donator.

The donator can create the account and whenever they are having extra food they can login and give request to the admin. And the admin also maintain the buyer (orphanage ,poor people,..) details too. After that admin view the donator request and give the alert message like collect the food.

And the admin collect foods from donator through their nearby agent then provide to nearest orphanages or poor people. After receiving the food from the agent by admin and give alert message to that donator.

This project is food redistribution is an enormously successful social innovation that tackles food waste and food poverty. The user's details are maintained confidential because it maintains a separate account for each user.

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Topic

Chapter-1

Introduction, Objective & Scope

In highly populated countries like India, food wastage is a disturbing issue. The streets, garbage bins and landfills have ample proof to prove it. Marriages, canteens, restaurants, social and family get-togethers and functions expel out so much food. Food wastage is not only an indication of hunger or pollution, but also of many economic problems . The high standard of living has resulted in the wastage of food, clothes, etc. because of quick changes in habits and lifestyle. Instead of wasting these things we can put them in use by donating them to various organizations such as orphanages, old age homes, etc. The product is an internet-based web- application that basically aims at charity through donations. Thereby, surveys were conducted at a few organizations like 'Ankur Nursing Home', Mira road (E) in order to get knowledge about the organization's daily requirements that are fulfilled and the ones that remain unfulfilled. Also, their feedback on the idea of creation of this product was taken.

Most people don't realize how much food they throw away every day — from uneaten leftovers to spoiled produce. About 95 percent of the food we throw away ends up in landfills or combustion facilities. In 2013, we disposed more than 35 million tons of food waste. Many people wish to donate things to needy organizations. Thereby, a Web- application has been developed through which people can donate leftover food as per their capacity and the application also allows organizations to put up their requests, i.e. food required by them, if any. The majority of the population today uses smartphones with active internet connection, which is the basic requirement for this product to function properly.

The scope of the project is to provide approaches and strategies which have proved to be the suitable when assessing the food waste system of the defined region. This collection will reduce the food waste from the household, company, industries, city, etc. The Environment pollution will reduce and will recycle or deployed. This technique could eliminate food waste disposal costs, reduce raw material costs and provide income from a salable waste. Food Waste can be recovered on-site, or through inter industry exchange.

Chapter-2

Review of Literature

Thyberg and Tonjes represented a researched paper **Drivers of food waste and their implications for sustainable policy development** in **Jan. 2016** which demonstrates a growing interest in establishing food waste prevention and recovery programs throughout the world. The drive to target food waste stems from increasing concerns about resource conservation, food security, food waste's environmental and economic costs, and a general trend in the waste management industry to transition to more sustainable practices. A review of important background information on food waste is also provided, including definitions of key terms, food waste history, quantities of food waste generated, and the importance of food waste prevention for sustainability, as this information is all critical for effective policy development [1].

Halloran et al. in **Dec. 2014** highlights **Addressing food waste reduction in Denmark** which examine the barriers and solutions to food waste prevention and reduction and examine the major efforts to address food waste in Denmark. This paper analyses causes of food waste, and discusses how different stakeholders address the prevention and reuse of the €1.18 billion of annual edible food waste [2].

Katajajuuri et al. in **June 2014** represented a research paper **Food waste in the Finnish food chain.** This study focused on mapping the volume and composition of avoidable food waste in the Finnish food production–consumption chain, and demonstrated that around 130 million kg of food waste are generated each year (23 kg per capita/year) from the household sector [3].

Amal Habadi, Clemson University in **Dec. 2011** shows a study paper on **The Food Waste Management System in a Southeastern Hospital.** This study investigated the amount of food waste from Bon Secours St.Francis Health System foodservice operations using the Trim Trax® program. Trim Trax® is a food waste management program in which employees measure the volume of waste produced in pre-production and post-production areas. The objectives of this

study were to collect the amount of waste produced during meal preparations and compare it with three weeks of retrospective data kept by employees in the salad/baking preproduction area, the cooking/grilling pre-production area and post-production area [4].

U.S Environmental Protection Agency (an office of resource conservation and recovery) in **April 2004** conducted a scoping study on **food waste and the methods by which they are managed.** The end-of-life sustainable food management (SFM) techniques presented in this scoping study include practices currently used as well as emerging technologies [5].

Komal Mandal, Swati Jadhav, Kruti Lakhani in **April 2016** demonstrate a research paper **Food Wastage Reduction through Donation using Modern Technological Approach: Helping Hands .** This paper presents 'Helping Hands', a new internet-based application that provides a platform for donating old stuff and leftover food to all needy people/organizations. It provides information about the motivation to come up with such an application, thereby describing the existing donation system and how the proposed product works for the betterment of society. The product is shown to be an effective means of donating things to organizations, etc. over the internet. It shows the potential for avoiding the wastage of food, clothes, books and other stuff [6].

M.Fehr in **June 2002** discussed a paper **The basis of a policy for minimizing and recycling food waste** in which the life cycle of basic food items was studied in order to discover the reasons for low landfill diversion rates of this material. Management failures at key points of the cycle were identified. Subjects of study were commercialization procedures of fruit and vegetables before consumption, consumption proper and after-consumption disposal procedures for food scraps in the Brazilian context [7].

Daniel N.Warshawsky in **Dec. 2015** has define **The devolution of urban food waste governance: Case study of food rescue in Los Angeles.** In this**,** In Los Angeles (LA), food waste is at record levels. This has negative outcomes for food insecurity, land use, and methane production associated with climate change. To overcome these challenges, a range of government, private, and civil society organizations (CSOs) have developed programs to reduce

food waste. With the decentralization, privatization, and devolution of food waste policies to local actors, CSOs have emerged as key institutions in the governance of food waste in many contexts. However, it is unclear whether CSOs have the capacity to reduce food waste and food insecurity, empower communities, or promote social change. To this end, this paper critically analyzes a local food rescue CSO as a case study in order to understand the challenges associated with food waste governance in LA and the roles that CSOs play in food waste reduction [8].

Suzanne Goldenberg in **July 2016** demonstrated a research paper based on **Half of all US food produce is thrown away.** Americans throw away almost as much food as they eat because of a "cult of perfection", deepening hunger and poverty, and inflicting a heavy toll on the environment. Vast quantities of fresh produce grown in the US are left in the field to rot, fed to livestock or hauled directly from the field to landfill, because of unrealistic and unyielding cosmetic standards, according to official data and interviews with dozens of farmers, packers, truckers, researchers, campaigners and government officials. By one government tally, about 60m tonnes of produce worth about $160bn (£119bn), is wasted by retailers and consumers every year - one third of all foodstuffs. Researchers acknowledge there is as yet no clear accounting of food loss in the US, although thinktanks such as the World Resources Institute are working towards a more accurate reckoning [9].

Juliette Jowit in **Oct 2007** research on **Call to use leftovers and cut food waste .** Research by the government's waste reduction agency, Wrap, found that one third of all food bought in Britain is thrown away - of which half is edible. Wrap will claim that this discarded food is a bigger problem than packaging, as the food supply chain accounts for a fifth of UK carbon emissions and decomposing food releases methane, the most potent of the greenhouse gases. Wasted food is estimated to cost each British household from £250 to £400 a year [10].

Barbara Szabo-Bodi in **Apr. 2018** establish a paper on **Assessment of household food waste in Hungary.** The purpose of this paper is to determine and quantify the most dominant types of food waste in Hungarian households and to analyse the effect of demographic background and income as influencing factors. Estimated quantity of total food waste (including liquid waste) per capita is 68.04 kg/year. In all, 48.70 per cent of total food waste would have been avoidable (equals to 33.14 kg/capita/year). Most frequently wasted food

categories were meals and bakery products. In case of some demographic categories, different wastage levels were observed. It was also confirmed that income has effect on food waste production that varies by foodstuff categories: bakery product waste was mainly dominant for middle income consumers and fresh fruits were typically wasted by more affluent households. Apart from that, higher income resulted in higher food waste production in general.[11]

Global Food Security (GFS) in **Jan. 2017** proposed a paper **Resilience of the UK Food System in a Global Context**. The UK imports around half of its food, and our diets are very varied demanding a wide range of foodstuffs to be available year round. Environmental, social, political and economic stresses interact to make the UK food system vulnerable to disruption. For example, extreme weather (an important aspect of climate change), conflict, currency fluctuations all affect crop production, logistics and trade. The effects of these food system 'drivers' (especially powerful when they occur together), lead to volatility in food supply and affordability [12].

Tara Parker in **Nov. 2017** demonstrated a research paper on **From Farm to Fridge to Garbage Can.** Citing various studies, including one at the University of Arizona called the Garbage Project that tracked home food waste for three decades, It is estimated that as much as 25 percent of the food we bring into our homes is wasted. So a family of four that spends $175 a week on groceries squanders more than $40 worth of food each week and $2,275 a year [13].

Hanze University of Applied Sciences in **Feb. 2017** researched a paper based on **Food Waste Project**. At the Hanze University food is being wasted. The Eurest staff is not able to tackle this problem alone, it is dependent on the efforts and a change of behaviour of the Hanze University staff accordingly. For one, the Eurest staff and Eurest itself can make changes and improvements on their current push strategy at cafes and cafeterias, however, food waste can only be minimized in this area, if in cooperation with Hanze students and staff. Secondly, the main food waste takes place with the pull strategy of Eurest, in the catering service. Too much food is being ordered and therefore wasted [14].

Maya Chavan, T.R. Pattanshetti in **Jan. 2018** researched a paper based on **Survey on Municipal Waste Collection Management in Smart City.** At present waste management is a major concern in the metropolitan cities of the developing and developed countries. As the population is growing, the garbage is also increasing day by day. Garbage management is becoming a global problem. Due to the lack of care and attention by the authorities the garbage bins are mostly seem to be overflowing. It has to be taken into care by corresponding authorities and should think what method can be followed to overcome this. This huge unmanaged accumulation of garbage is polluting the environment, spoiling the beauty of the area and also leading to the health hazard. To overcome this situation an efficient smart municipal waste management system has to be developed. In this era of Internet, Internet of Things (IOT) can be used effectively to manage this waste as many effective methods can be found out easily. This is the survey paper which involves the various ideas to solve this problem using some algorithms that can be easily implemented [15].

3.1 Project Category

In this food Management project, the technique used is web-based application using PHP. The data and information which is collected from the user is also saved in the form of databases using My SQL.

There are different modules which are created in this project. The modules are Admin module, Donor module and Agent module.

3.2 Techniques to be used

The Technique we are using in this project is designing a web-application by using PHP. To store the useful data and information, databases are created by using My SQL. We are using PHP for coding and designing using WAMP server. There are different modules which are necessary for designing and implementing . These modules are given below:-

3.2.1.Admin Module

3.2.2.Donator Module

3.2.3.Agent Module

3.2.4.Comments Module

3.2.1 Admin Module:

In admin module, the administrator maintain the agent details as well as the donator details. The administrator collect the food from the agent. The administrator also send the agent details to donator.

3.2.2 Donator Module

In donator module, the donator give the wastage of food to the orphanage. The donator give the request to the admin for the purpose of to collect the wastage food. The donator view the agent details.

3.2.3 Agent Module:

In Agent module, the agent maintain the donator details. The agent give the request to the admin for collect the food from the donator. After collect the food the agent give the alert message for the donator.

3.2.4 Comments Module

In this module the user give the comments for this site. While entering the comments, user must enter the following details such as, user name, email id and user comment. The admin can view user comments and details.

3.3 Parallel Techniques Available:-

The application is developed using Android Studio and the languages used are core Java and XML. The main objectives of this application include reduction in wastage of food, making food, making food, clothes, etc. available to orphanages, old age homes and other such organizations, which will also inculcate values of sharing and sensitivity among people.

The application shall ask the user/donor to register his/her details into the system and then he/she can login and put up items to donate. Similarly, organizations can register in the system and then put up their item requirements. Also, a donor can view the list of items put up by seekers and can donate the same, if possible. In the same way, seekers can view the list of items put up by donors and if required, can claim the donated item by contacting the donor.

3.4 Hardware and Software Requirements and its Specifications

3.4.1 Hardware requirements:

- Hardware   -   Pentium
- Speed   -   1.1 GHz
- RAM   -   1GB
- Hard Disk   -   20 GB
- Key Board   -   Standard Windows Keyboard
- Mouse   -   Two or Three Button Mouse
- Monitor   -   SVGA

3.4.2 Software requirements:

- Operating System -   Windows
- Technology   -   PHP
- Web Technologies -   Html, JavaScript, CSS
- IDE   -   Sublime
- Web Server   -   XAMPP
- Database   -   My SQL

Proposed Methodology

4.1 Proposed System

The proposed application is web-based, developed on Wamp 2.2e using php and sql requires internet connection and will provide a platform for donors and seekers after they successfully register into the system. If a user wishes to donate a wastage of food, he/she can send a message in application. This message will be shown as notification in donations tab to other users. This message will be stored in backend in the database. Once a notification is sent, the orphanages who wish to claim the donations can reply to the donor and contact him/her. The user interface of this system will be simple and user-friendly, and the targeted system is web. At present, we are aiming to avoid the major wastage that usually happens in India and that is foodstuffs. Also the application will be beneficial if donors and seekers are located near each other. The use case diagram shown above describes 3 actors – Donor, Agent and Admin. The Donor performs operations like Registration and Login into the System. He can also put up items for donation and view all donation requests (items required by organizations). The Admin and Donor both can view the Agents's location. The Admin can also monitor and update the database. The Admin and Agent both can view the Donor's location. The Agent can also perform operations like requesting for items, viewing requested items and claiming donations.

4.2 Proposed Algorithms

► Step 1: Sign Up For registering as a user.

► Step 2: Login

► Step 2.1: If successful Go to step 3.

► Step 2.2: Else Go to step 1.

► Step 3: Send request to the admin for collection of food, give address & details.

► Step 4: Using the technique of Ant colony Optimization, Agent will Collect the food and deliver it to the needy. And send alert to the admin about delivery.

► Step 5: Admin give final alert to the donor that the food is been delivered successfully. Else tell the User to go to step 3.

► Step 6: Exit

Implementation of Ant colony Optimization:

► A short path, by comparison, gets marched over more frequently, and thus the time saving density becomes higher on shorter paths than longer ones.

► Step 1: As it get's the address of the Donor firstly it checks the nearby agent to it and the sends the request to the nearby Agent with the help of GPS Router that is attached to every agent.

If and agent has two donors at a time go to step 2.

► Step 2: when an Agent have 2 donors at a time he with the help of Ant Colony Optimization technique follows the shortest path and collects the food from the Donor.

4.3 Project Development Model

Spiral Model

• For this FWMS project, we are using spiral development methodology. Spiral model is a software development process that combines both prototyping and design in stages; its basic concepts are as follows:
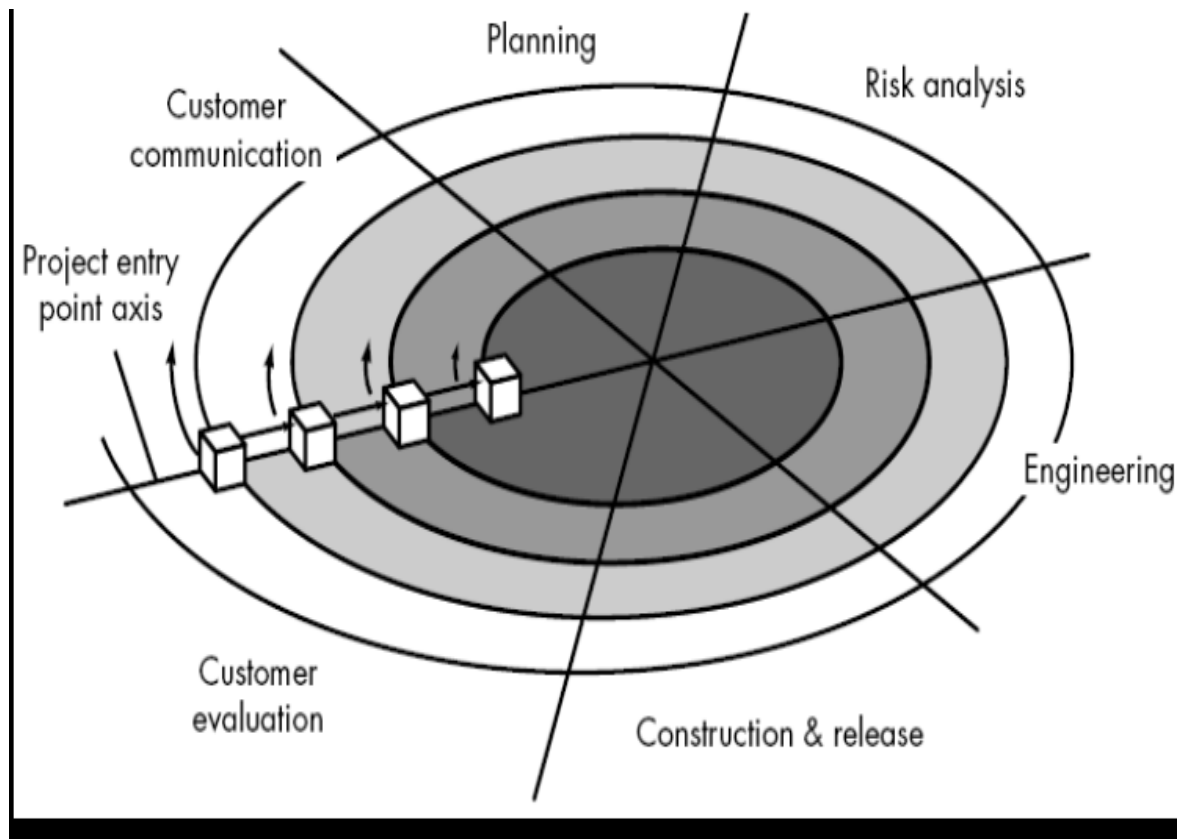
Figure-1

Focus is on risk assessment and on minimizing project risk by breaking a project into smaller segments and providing more ease of change during the development process, as well as providing the opportunity to evaluate risks and weight consideration of project continuation throughout the life cycle.

- Each trip around the spiral traverses four basic quadrants:
1) Determine objectives, alternatives and constraint of the iteration.
2) Evaluate alternatives, Identify and resolve risks.
3) Develop and verify deliverables from the iteration.
4) Plans next iteration.

4.3.1. Identification:

This phase starts with gathering the business requirements in the baseline spiral. In the subsequent spirals as the product matures, identification of system requirements, subsystem requirements and unit requirements are all done in this phase. This also includes understanding the system requirements by continuous communication between the customer and the system analyst.

4.3.2. Design:

Design phase starts with the conceptual design in the baseline spiral and involves architectural design, logical design of modules, physical product design and final design in the subsequent spirals.

4.3.3. Construct or Build:

Construct phase refers to production of the actual software product at every spiral. In the baseline spiral when the product is just thought of and the design is being developed a POC (Proof of Concept) is developed in this phase to get customer feedback. Then in the subsequent spirals with higher clarity on requirements and design details a working model of the system called build is produced with a version number. These builds are sent to customer for feedback.

4.3.4 Evaluation and Risk Analysis:

Risk Analysis includes identifying, estimating, and monitoring technical feasibility and management risks, such as schedule slippage and cost over-run. After testing the build, at the end of first iteration, the customer evaluates the software and provides feedback.

4.4 System Architecture

4.4.1. Input Design

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in

to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things.

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

4.4.1.1 Objectives

1.Input Design is the process of converting a user-oriented description of the input into a computer-based system. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.

2. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

3.When the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow

4.4.2 Output Design

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

1. Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should Identify the specific output that is needed to meet the requirements.
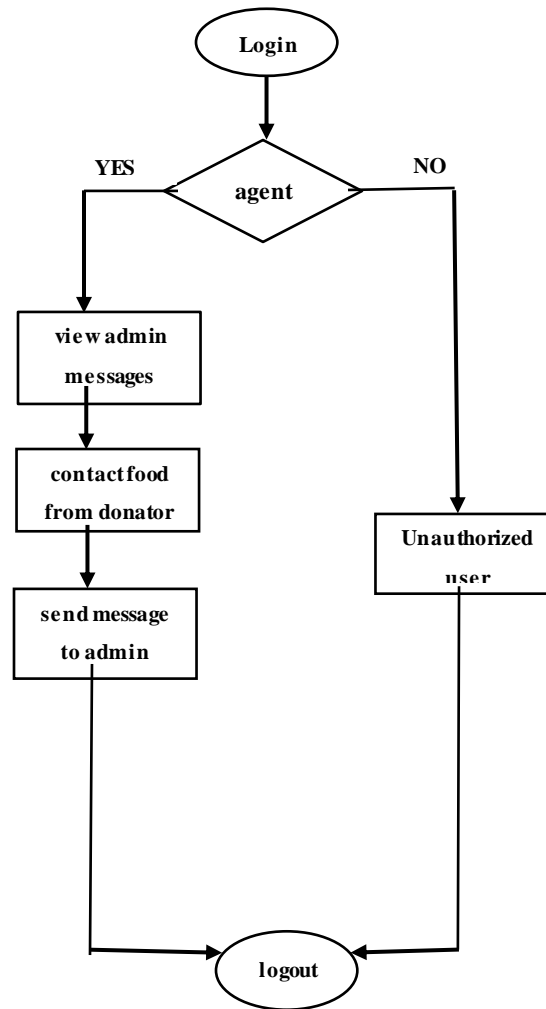
2.Select methods for presenting information.

3.Create document, report, or other formats that contain information produced by the system.
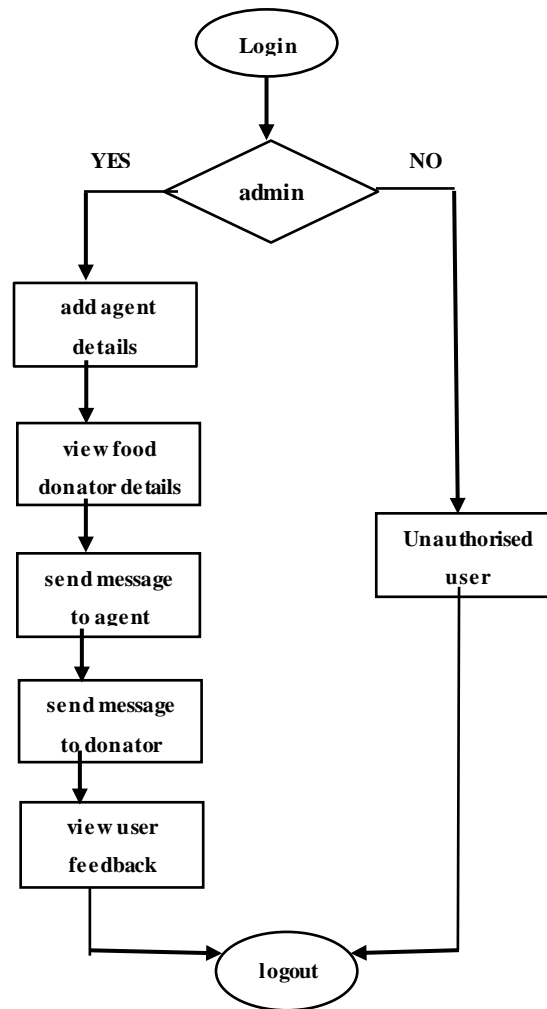
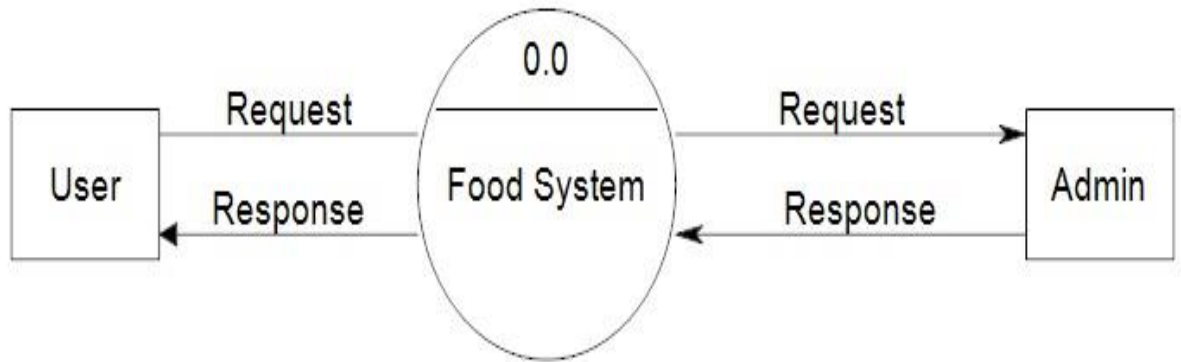## 4.5 Flow Chart

4.5.1. User
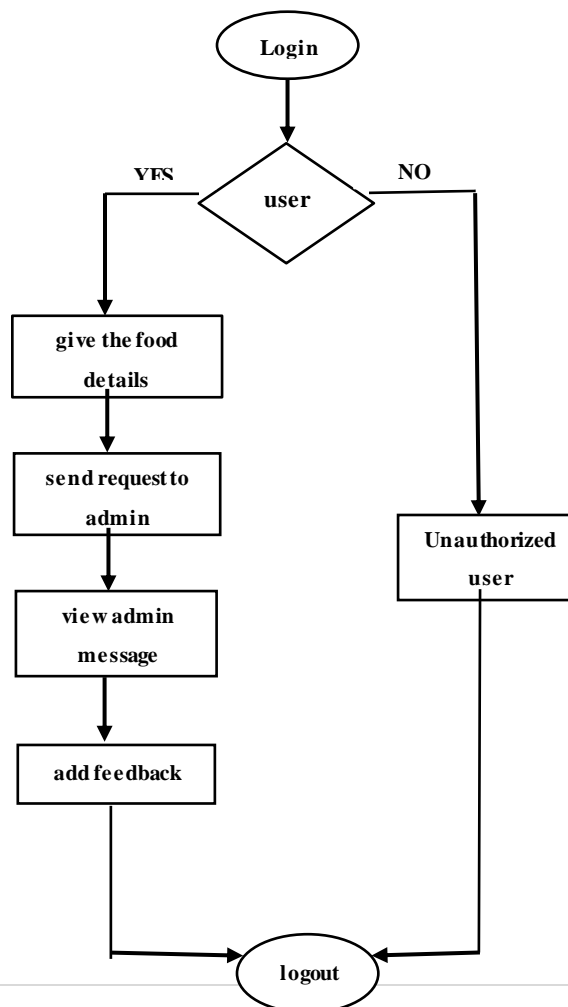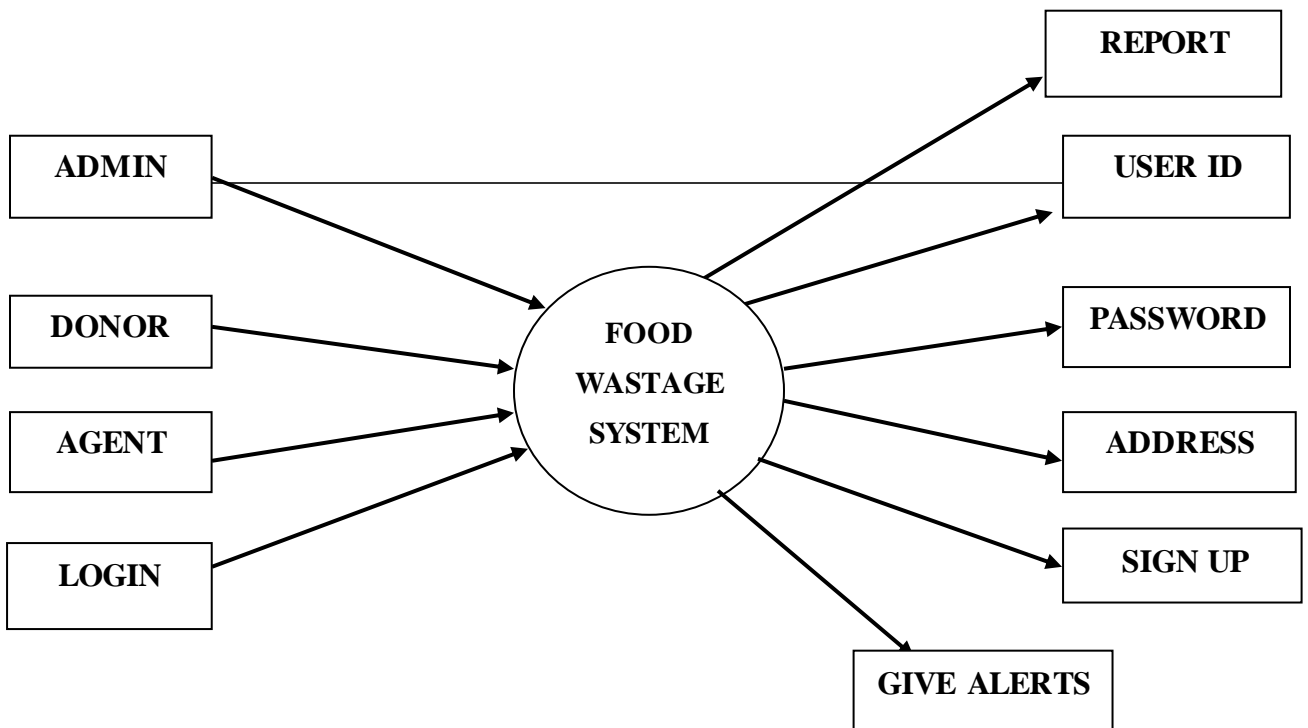
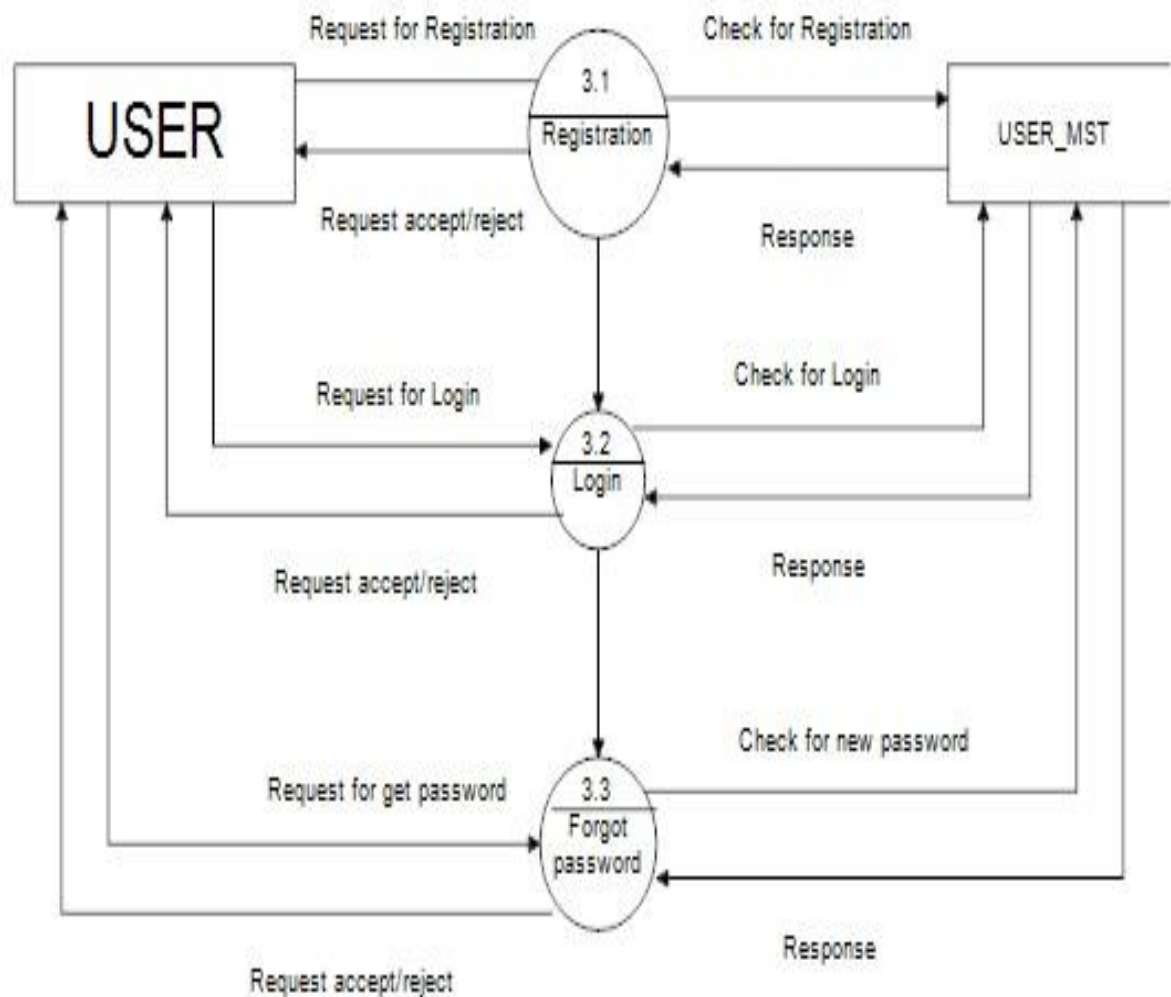## 4.5.2. Agent

4.5.3. Admin

4.6 Data Flow Diagram (DFD)

4.6.1 Context level DFD for Online food wastage management system

4.6.2 1st level DFD for User

4.6.3. 2nd level DFD for User

Chapter-5

Testing Technologies & Security Mechanisms

5.1 System Testing

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

5.2 Types of Testing

5.2.1 Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application .it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

5.2.2 Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and

consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

5.2.3 Functional testing

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input   : identified classes of valid input must be accepted.

Invalid Input   : identified classes of invalid input must be rejected.

Functions   : identified functions must be exercised.

Output   : identified classes of application outputs must be exercised.

Systems/Procedures : interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

5.2.4 System Testing

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

5.2.5 White Box Testing

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

5.2.6 Black Box Testing

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot "see" into it. The test provides inputs and responds to outputs without considering how the software works.

5.3 Unit Testing

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases.

5.4 Test strategy and approach

Field testing will be performed manually and functional tests will be written in detail.

Test objectives
- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

Features to be tested
- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

5.5 Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects. The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

5.6 Security Mechanism

5.6.1 Risk Management and Security Testing

Software security practitioners perform many different tasks to manage software security risks, including:

- creating security abuse/misuse cases;
- listing normative security requirements;
- performing architectural risk analysis;
- building risk-based security test plans;
- wielding static analysis tools;
- performing security tests;
- performing penetration testing in the final environment; and
- cleaning up after security breaches.

<div align="right">**Chapter-6**</div>

Future Scope, Further Enhancement & Limitations

Future Scope And Further Enhancement

For the Future purpose we can see its many aspects as it can be efficiently used to avoid food wastage and for further more we can add more features to it like adding various blogging part and wide spreading the use of this application. We can also insert various features and can work along with NGO's for better results and better application of this Project what we are imagining this is firstly to remove the Food wastage across the city then after adding this to an NGO we will be working with various models and various cities across the state it will take a bit more time but it will work for sure and after that the next step will spreading its agents and donor nationwide. As we enter into its business policies its lack of investments and more profits in the sense of social welfare because it hardly requires much money but it help more no. people who can be served and the food can be saved in a very effective manner.

This project is food redistribution is an enormously successful social innovation that tackles food waste and food poverty. the admin collects food from donator through their nearby agent then provide to nearest orphanages or poor people. After receiving the food from the agent by admin and give alert message to that donator through this way we can reduce food wastage problem.

The future Vision is like we are Aiming to Cover and Serve the whole Nation so in some manner we would be contributing to save some amount of wastage in our country. That is the what we are assuming it to work like. It will be very helpful For all of us that this website/ WebApp will be efficiently be used and further we can work over it with Android Language and making an Android App out of it using the Google services.

Limitations

- Waste prevention and management reduces the coming Demand from Hotels and nearby restaurants from the Orphanages.

- Claims of the food waste hierarchy are not proven or fully achieved through policy.

- Absolute saving requires stricter specification of options and targets.

- Classification of waste, and collection practices, must consider waste value.

- Dematerialization needs an overarching strategy inclusive of waste.

Chapter-7

Conclusion

The USDA estimates that more than 30% of all food products in the United States are thrown away, costing the nation more than $161 billion per year, with equally significant environmental costs. This is often due to an inefficient supply chain.

It's a problem that has prompted a range of innovations all the way from farm to store. For instance, British startup the Small Robot Company have combined robotics and AI to 'digitize the field' and therefore offer precision farming on a 'farming as a service' model. The aim is to provide the farmer with detailed information on their land, all the way down to a profit map that highlights the best areas to use, the best areas to rest and which plants to sow where and when. The team believe that this use of technology would significantly reduce the amount of chemical used in arable farming, with estimates of both chemical and energy usage reductions of around 90%.

Use of Technologies have great impact on reducing the food waste. Food waste management system is one of the web application in which a remaining food can be donated from user to the organisation through an agent. Due to this a food can be consumed and not wasted.

The Avoid Food Wastage project can be efficiently used by to donate the waste food. The donator donate the food by adding the information about in this site. The admin maintain the donator details as well as the agent details. The admin send the donator details to the agent. The agent collect the food from the donator and to give the nearest orphanage.

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