**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 REPORT**

On

**“FOOD WASTAGE MANAGEMENT SYSTEM”**

Submitted in

Partial Fulfillment of the requirement for Award of the Degree in

**BACHELOR OF TECHNOLOGY**

IN

**COMPUTER SCIENCE & ENGINEERING**

Under the guidance of:

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**DECLARATION**

We hereby declare that the submission of project report is our own work to the best of our knowledge and belief. It contains no material previously published or written by another person. It contains the result of original work and studies carried out by ourselves and the contents of report file do not form the basis of any other degree to candidate.

Anushka Jain

Harshita Dixit

**CERTIFICATE**

This is to certify that the synopsis entitled “**Food Wastage Management System**” has been submitted by ANUSHKA JAIN and HARSHITA DIXIT in partial of fulfillment of the degree of Bachelor of Technology in Computer Science & Engineering of “R. B. S. Engineering Technical Campus, Agra” from AKTU Lucknow for the session 2015-2019 (8th semester).

Project Guide

Er. Saumya Tripathi

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Harshita Dixit

**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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**CHAPTER-1**

**INTRODUCTION**

**1.1 Outline of Thesis**

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.

**1.2 Motivation**

**1.3 Objective**

1. The main Objective for creating this Project relies behind the wasting of food and incognizance of people around to ignore such an issue.
2. With this Project we are expecting to remove the food wastage in India using the online mode for larger people to access and more who can access easily.
3. People just have to make an entry and then they will be capable of helping the needy and utilising the food in a great way.

**1.4 Application**

**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**](https://www.sciencedirect.com/science/article/pii/S030505481730271X#bib0013) 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**](https://www.sciencedirect.com/science/article/pii/S030505481730271X#bib0014) 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 aresearch 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**](https://www.sciencedirect.com/science/article/pii/S0264275115000931#!)  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**](https://www.theguardian.com/profile/suzannegoldenberg) 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](http://www.wri.org/) are working towards a [more accurate reckoning [9].](http://flwprotocol.org/)

**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**](https://www.emeraldinsight.com/author/Szab%C3%B3-B%C3%B3di%2C+Barbara) 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.**](http://well.blogs.nytimes.com/2010/11/01/from-farm-to-fridge-to-garbage-can/?ref=science) Citing various studies, including one at the [University of Arizona](https://topics.nytimes.com/top/reference/timestopics/organizations/u/university_of_arizona/index.html?inline=nyt-org) called t[he Garbage Project](https://www.nytimes.com/1992/07/05/books/we-are-what-we-throw-away.html) 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].

**CHAPTER-3**

**MATERIALS AND METHODS**

## **3.1 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.

## 

## **3.2 Techniques to be used**

## **3.2.1 Languages**

1. Python
2. Django – Web Framework
3. HTML
4. CSS/CSS3

**3.2.2 Database**

1. SQLite

**3.3.3 Web Browser**

1. Google Chrome
2. Internet
3. Mozilla Firefox

## 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