

# Food Waste Management System

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## ABSTRACT—

This research paper is about to present “FOOD WASTE MANAGEMENT” system.

i. Everyday people used to waste foods. In order to avoid that food wastage problem through an android application I planned to do this project. In this project, android-based Food Waste Management system can assist in collecting the leftover food from hotels & restaurants to be given to NGOs which can further distribute it to needy and hungry people.

ii. NGOs that are helping poor communities to battle against starvation & malnutrition can raise a request for food supply from restaurants through this application. Once the request is accepted by Admin, the NGOs can collect the food from the restaurants for its

iii. distribution.

iv. In this way this android-based food waste management system will help restaurants to reduce food waste and will help in feeding the poor and needy people

## I. INTRODUCTION

Presently, in this era, wastage of food being a serious concern, we can see eatables wasted on daily basis at different places like restaurants, weddings, schools-college canteens, social events and other occasions. As per a survey, on daily basis, 40% of food is getting squandered in India on different occasions. People generally donate food manually to organizations operating on such a purpose or to needy people to minimize the food wastage. This paper presents “Food Waste Management”, is a new android application through which mankind can donate food in order to reduce the issue of food wastage. The proposed system consists of 3 modules in this application: admin, restaurants and NGOs. This application furnishes a portal for restaurants to give away the leftover food to organizations/ NGOs so that food wastage can be avoided. This application gives you an option to order food from restaurants as per your

desired budget to donate the food. The admin module has access to modify, delete the profiles and make changes in application. Admin will substantiate the restaurant information. In the restaurant module first they'll get themselves enrolled if, they are not already enrolled, which can be done through email address or can connect from Gmail or Facebook. For sign-in the options will be same as registration. There are choices to place orders according to the budget, also users can track their orders. Restaurants can add on their information or update their profiles. The NGOs module will get notified from where to receive the order and drop the orders to destination.

INDEX TERMS— Food wastage, Android Application, Authenticate, Android Studio, Firebase Database, Gmail, Facebook, java, XML(Extensible Markup Language)

## II. LITERATURE REVIEW

The Paper ‘Smartphone Based Waste Food Supply Chain for Aurangabad City Using GIS Location Based and Google Web Services’, published in 2014, it describes the client-server GIS and a mobile application to make a hunger free city. The application for client side gives the option to donate food to the needy peoples. Donors put on the simple information such as food quantity and what type of food it is with amount and their respective mobile number. The NGOs or any social working organization will pick-up the food and deliver it to hungry people. When the registration will be completed it will be updated on the server side database from where the organizations can store the entries of donors and the best possible path of donor's location to the nearest NGOs or any organization along with direction will be visible. So that hungry people can get food on time.

The paper ‘Beyond food sharing: Supporting food waste reduction With ICTs’, published in 2016, guaranteed that the quality of food is one of the keys to live a better life with good health for natives at all levels. As present economic issues have been raised, people are going through more problems like food poverty,

especially in well-established regions. Regardless of an increased awareness of importance to minimize food wastage among people and managing extra food, the part of ICTs in this domain is still blurry and hardly documented. According to

this paper to recover excess food we use the ICT tools to recover food excess at various stages of the supply mechanism and it also states the way forward for a combined set of ICT tools to minimize waste from producers to needy families.

According to the paper 'Food donation portal', which was published in 2015, summarizes that the variation in food donation activities provides a way that helps to connect food donors to social working organizations or NGOs. Awareness for a food donation link is presented, and respective influence on society through this path is mentioned. The only drawback in this paper is that there is no GPS tracking available forcing the donors to find nearest organizations of their area physically.

The paper 'Helping Hands', published in 2016, this project focuses on internet application which enables an innovative plan for donating not needed food to hungry people and

organizations. It motivates to invent such application, describes the purpose of this donation and how will the proposed system will be effective towards the betterment of society. The main disadvantage of this application is that it does not have dashboard on system resulting that, at the end of month it don't show any record of donation given or received.

In the paper 'A New Approach to Reduce Food Wastage using Ubiquitous Technique', which is published in 2015, Every day the quantity of food getting waste is increasing continuously, becoming a consequential social, environmental and financial concern. Each day huge amount of food is being wasted in several restaurants and social gatherings. In a country, a massive number of citizens are unprivileged that they do not have basic necessities to live, like food, clothes, etc. There are various organizations working on such cause where they feed so many under-privileged individuals and take care of their needs, but in this extremely populated nation, it's nearly impossible to reach out to all. So, the proposed system links them together so that the food can be distributed conveniently to hungry people without being wasted, and can be fed to the maximum number of people.

### III. METHODOLOGY

The motivating factor to launch this application is to reduce food wastage as much as

we can, and to feed those people who do not have sufficient food even for one time to feed themselves. It's a big hassle for them to roam in search of food every day to feed themselves as well as their families, and also for donors to reach out to them.

To resolve this, we have developed an android application, which aims to connect restaurants and the NGOs or organizations working on these cause/needy households to increase the excess of food donation. As cell phones have a strong wide impact on today's society. In past few years Android has become the most known platform for mobile-phones, according to a research android is being used in more than 190 countries on millions of smartphone devices. Android is the most installed operating system for most of the smart devices, and the number of Android users can be seen increasing day by day. Later almost 1 million users on daily basis buy new Android devices and start using it immediately to get digital content such as games, application, and many other services.

For developing the front-end of our application we used Android Studio as, it has a strong tool to edit developing creative UI and emulators for various versions to test and simulate sensors without having actual Android devices.

To create back-end we used firebase, and the languages used are java and XML. Application consists of three modules:

#### 1 ADMIN

First module is an admin that has the complete application. The admin can make changes in application whenever they feel to, can add or delete a profile. Admin will validate the information provided by the restaurants and then will allow them to make an account.

#### 2 RESTAURANT

Firstly, restaurants have to get themselves registered, which can be done through Gmail or Facebook. After logging into their respective account, they will update the details of the food like description of food, quantity of food, budget for donation, pickup time which will be verified by admin. If the admin finds the details of food as well as restaurant appropriate, then the admin will give approval to this donation, getting it uploaded on the dashboard of NGOs.

#### 3 NGOs

NGO will open their dashboard after successful registration, here, the list of food items approved by admin to get distributed will be

visible. As per the demand and need, the NGO will either accept or reject the food.

When the NGOs accept the food offer, they will be directed to fill a form regarding the details of employee-his name, ID proof, who will be allotted to receive the order.

After that, all above updated details will be made available to restaurants which is mentioned by NGO. Restaurants will verify the details and immediately the system will generate an OTP, updating OTP by restaurant confirms the order. The employee of an NGO allotted will pick the order from the restaurant and drop it off at the desired destination i.e NGOs or any other social organisation.

#### IV. EXPERIMENTS & RESULT

TABLE 1  
Status Of Food Waste

State	Population in million	Solid waste generation/day in tons
<u>Uttar Pradesh</u>	199,812,341	9,900
<u>Maharashtra</u>	112,374,333	7,500
<u>Bihar</u>	104,099,452	
<u>West Bengal</u>	91,276,115	4,900
<u>Madhya Pradesh</u>	72,626,809	4,400

Describes the status of food that is wasted on daily basis in different state of India

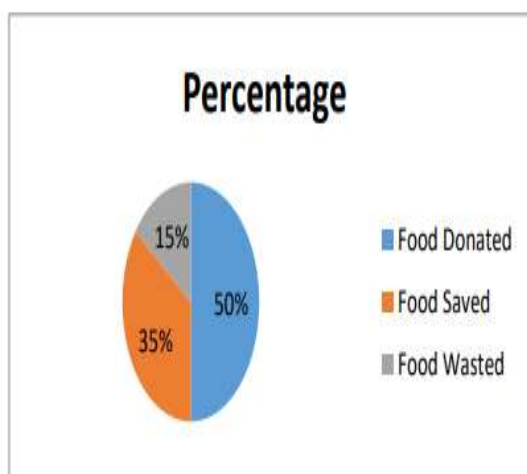


Fig 2. Graphical representation of food preserve through application.

Fig 2 shows the future assumption that 50% food will be donated, 35% food will be kept saved from that, and 15% food that as wasted.

#### I. ADVANTAGES

Donation of food can be done from home easily. Wastage of food will be minimised. Enabling GPS system will make it convenient to locate nearest organizations or restaurants. Easy to use and understand. User friendly

#### CONCLUSION & FUTURE WORK

The main purpose of the proposed application is to make reduction in food wastage as much possible as we can, and to feed needy and hungry peoples who are not capable to manage even one time servings for themselves. It's a big difficult job for them to search food every day to feed themselves along with their families, and also for donors to reach out to them. This application comprises of three modules: admin, user, and rider. The software used to develop our android application is android studio and firebase for database, hoping that this application will help in decreasing the food wastage, and people begin to donate excess food to needy people or organizations.

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