

# Reduction of Food Wastage through Android Application – Make You Smile

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**Abstract**— In current era food wastage is being a real issue, on daily basis food is wasted in different places like restaurants, weddings, schools/college canteens, social events and other events. According to a report, 40% of food is wasted in Pakistan on daily basis during different events and weddings. People usually donate food manually to organization working on such purpose or to people who are in need to reduce the food wastage. This paper presents “Make You Smile”, is a new android application through which people can donate food in order to reduce the problem of food wastage. The proposed system contains three modules in this application: admin, user and driver/rider. This application provides a portal for restaurants to donate the leftover food to organization/ NGOs so that they can avoid food wastage. In this application there is an option to order food from restaurants according to your desired budget to donate the food. The admin module has access to modify, delete the profiles and make changes in application. Admin will authenticate the user information. The user can be restaurants, schools or college and any other person. In the user module first they'll register themselves if, they are not already registered. They can register through email address or can connect from Gmail or Facebook. For sign-in the options will be same as registration. There are options to place order according to the budget, also users can track their orders. Users can add information or update their profiles. The driver or rider module will get notification from where to pick 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),

## 1 INTRODUCTION

IN extremely populated country like Pakistan, food wastage is a real issue. The foods waste on the streets, garbage bins and landfill are enough evidence to show it. In weddings, educational institutes canteens, restaurants, social or family get-togethers and other events so much food is wasted. Food wastage is not just a warning for pollution or hunger, but also for so 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. We should donate the food, clothes, etc., to NGOs or any other organizations working on such cause, instead of wasting these things.

The research paper is about android application which aims to establish a link between restaurants and the NGOs or organizations who works for these cause/ needy households to enable the excess for food donation. As mobile phones has a wide impact on today's society. In past few years Android as become the most popular platform for cell-phones, according to a research android is used in more than 190 countries on millions of smartphone devices. Android is the most installed operating system for smart devices, and every day the number of Android users are increasing day by day later almost 1 million users on daily basis purchase new Android devices and use it immediately to get digital content such as games, application, and many other services[1].

There are many people who wish to donate their belongings to needy organizations. Also, so many organizations desire to ask for various different things necessary by them such as clothes, food, books, etc., but there is no way available through which they can fulfill their

requirements. Due to that, we developed an android application “Make You Smile” using android studio because it will reach a wider range of audience since most people these days use android phones. Through that application people can donate things according to their capacity.

The front-end of our application has been built on Android Studio and the languages used are java and XML (Extensible Markup Language). The back-end is made on Firebase database. Our Android Application consists of three modules, first module is admin that have on 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 users and then will allow to make an account.

The second is user module that can register them if they are not already registered. The registration can also be done through Gmail or Facebook. After logging into the account user can select the items to donate or there's an option to place order through application tell the quantity and the budget for donation, order payment will be done through cash on delivery. Users can track the location of the riders who is taking off their order to be delivered. Users can be restaurants, any organization or some random people.

The last module is of driver or rider first they have to make their profile after will get notified whenever they'll get an order, he'll pick the order from destination and drop it off to the desired destination i.e., any social organization or too needy people.

## 2 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 mobile application to make a hunger free city. The application for client side gives the option to donate food to the people in need. Donors enter the simple information such as quantity of food and what type of food it is with amount and their respective contact number. NGOs or any social working organization can pick-up that food and deliver to hungry people. When the registration will be completed it will be placed on the server side database from where the organizations can store the entries of donors and the optimal path of donor's location to the nearest NGOs or any organization along with direction will be shown. So that hungry people can get food on time [1].

The paper 'Beyond food sharing: Supporting food waste reduction With ICTs', published in 2016, guaranteeing the quality of food is a key to live a better life with good health for citizens at all levels. As current economic issues have been increased people are facing more problems like food poverty, especially in established regions. Regardless of a growing awareness of importance for reduction of food wastage among people and managing extra food, the part of ICTs in this domain is still unclear and hardly documented. According to this paper to recover food excess we use the tools of ICT tools to recover food excess at many stages of the supply chain and it also describes the way forward for an combined set of ICT tools to decrease waste from producers to needy families [2].

According to the paper 'Food donation portal', which was published in 2015, sums up in brief that the change in food donation activities and that provides a way which connects food donor to social working organization or NGOs. Awareness for a food donation link is presented, and influence on society through this path is mentioned. The only disadvantage in this paper is that there is no GPS tracking available. So, that the donors have to find nearest organizations of their area manually [3].

This paper 'Helping Hands', published in 2016, this project is based on internet application which offers an innovative plan for donating unwanted food to hungry people and organizations. It tells the motivation to make such application, describes the aim of this donation and how will the proposed system will work towards the betterment of society. The main flaw of this application is that it does not have dashboard on system that's why, at the end of month it don't get any record of donation given or received [4].

In this paper 'A New Approach to Reduce Food Wastage using Ubiquitous Technique', which is published in 2015, Every day the amount of food wastage is increasing continuously, it's becoming a serious social, environmental and financial issue. Each day huge amount of food is being wasted in different restaurants and social gatherings. In a country, a huge number of people are unprivileged that they do not have basic necessities to live, like food, clothes, etc. There are so many different organizations working on a cause where they feed so many under-privileged and take care of their needs, but in this extremely populated country it's nearly

impossible to reach out to everybody. So, the proposed system connects them together so that the food can be distributed easily too hungry people without being wasted, and can be feed too greater amount of people [5].

## 2 METHODOLOGY

The motivation to make this application was to make reduction in food wastage as much as we can, and to feed those people who do not have enough food for one time to feed themselves. It's a big hassle hard for them to search food every day to feed themselves as well as their families, and also for donors to reach out to them.

To resolve this we develop an android application, which aims to establish a link between restaurants and the NGOs or organizations who works for these cause/needy households to enable the excess for food donation. As mobile phones has a wide impact on today's society. In past few years Android as become the most popular platform for cell-phones, according to a research android is used in more than 190 countries on millions of smartphone devices. Android is the most installed operating system for smart devices, and every day the number of Android users are increasing day by day later almost 1 million users on daily basis purchase new Android devices and use it immediately to get digital content such as games, application, and many other services [6].

For developing the front-end of our application we used Android Studio because, it has a strong tool to edit developing creative UI and emulators for so many different versions to test and simulate sensors without having actual Android devices [7]. To build back-end we used firebase, and the languages we used are java and XML. Application consists of three modules:

### 3.1 Admin Module

First module is admin that have on 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 users and then will allow to make an account.

### 3.2 User Module

The second is user module that can register them if they are not already registered. The registration can also be done through Gmail or Facebook. After logging into the account user can select the items to donate or there's an option to place order through application tell the quantity and the budget for donation, order payment will be done through cash on delivery.

Users can track the location of the riders who is taking off their order to be delivered. Users can be restaurants, any organization or some random people.

### 3.3 Rider/Driver Module

The last module is of driver or rider first they have to make their profile after will get notified whenever they'll get an order, he'll pick the order from destination and drop it off to the desired destination i.e., any social organization or too needy people. It also have the feature of GPS tracking.

## ADVANTAGES

- You can donate food from home easily,
- Food waste will be reduced,
- GPS system will make it easy to find nearest organizations or restaurants,
- Easy to use, and
- User friendly.

## 4 EXPERIMENTS & RESULT

TABLE 1  
STATUS OF FOOD WASTE

City	Population in million	Solid waste generation/day in tons
Karachi	20,500,000	9,900
Lahore	10,000,000	7,510
Faisalabad	7,500,000	4,900
Islamabad	5,900,000	4,400
Hyderabad	5,500,000	3,880
Multan	5,200,000	3,600
Gujranwala	4,800,000	3,400
Sargodha	4,500,000	3,000
Peshawar	2,900,000	2,000
Quetta	600,000	700

Describes the status of food that is wasted on daily basis in different cities of Pakistan.

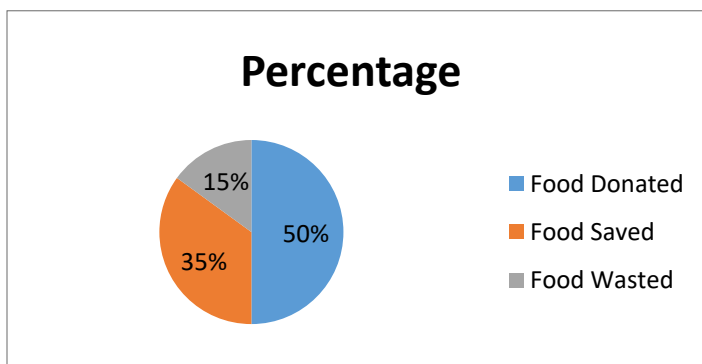


Fig 2. Graphical representation of food saved through application.

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

## 5 CONCLUSION & FUTURE WORK

The main objectives of the proposed application was to make

reduction in food wastage as much as we can, and to feed those people who do not have enough food for one time to feed themselves. It's a big hassle hard for them to search food every day to feed themselves as well as 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. We hope in future this application will help to reduce the food wastage, and people starts to donate excess food to needy people or organizations.

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