

# An Android and Web based Food Donation Application to Reduce Food Waste

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**Abstract:** *World is battling serious food shortage and other economic crisis. And with the latest introduction of Covid19 Pandemic the situation has worsen. An important goal in our world today is to eliminate food waste by reutilizing available food sources within local communities: leftover food items in restaurants, stores and food distribution centers that may be approaching expiration; and any perishable items not used in entirety within their desired period [1]. Edible food thrown out as food waste could be used for the nourishment of people in need. NGOs/Communities work towards providing food and other help to the needy. If we can connect these two, in such a way that these orphanages can get the “food to be wasted” without hassle, and the hotels/restaurants/party-halls find these food seekers without any extra effort then it will serve a greater cause and will be a big service to humanity [2]. This paper focuses on creating a mobile/web application that provides a platform for Individuals/Restaurants to donate food and for NGOs to seek food resources in their local area and distribute them to needy, thereby tackling two major issues, i.e., hunger and food waste.*

**Keywords:** Food wastage, Food Donation, NGO, Doner, Receiver

## I. INTRODUCTION

The amount of food waste generated in the country continually increasing, the misuse of food along each stage of the food lifecycle has become a serious environment, social, and financial issue. Huge quantity of food is wasted every day in hotels and restaurants. The waste at marriage halls, a party hall etc. is also gigantic. In a country, a huge society is deprived of basic amenities and don't get meal for one time, such wastage is intolerable. It is an irony that there are hundreds of orphanages working towards helping the people belonging to under-privileged society and want to at least provide them with bare minimum requirements such as food and shelter.

Food sharing is a process wherein people and organizations commit to assure that food is shared rather than thrown away. It is a foundational form of participation which is remarkable for its central factor in shaping person life history, social structure, and cooperative behavior [3].

The edible food that is thrown away could be repurposed for human use. Throwing away edible food that could be fed to someone else is a complete waste of resources. NGOs gather and redistribute food from donors to community centers (needy people). The approach involves NGOs collecting food waste and donating it to those in need (charity homes), taking into account the varieties and sources of food. The method assists NGOs in collecting surplus food waste from donors and donating it to those in need.

## II. LITERATURE SURVEY

Food wastage and its stockpiling are becoming severe problems throughout the world due to continuous increase of the world's population. At present, various kinds of approaches are investigated in waste food processing and



management for societal benefits and applications [4]. Before and after the food is thrown away, most of the people stop thinking about it. They never care or think that the food they are wasting might help to eliminating the appetite of those who are starving for food [5]. Globally, an approximate of one third of food produced for human consumptions is lost or wasted, equaling a total of 1.3 billion tons of food per year [6].

Shinta Oktaviana R, Diana Ambarwati Febriani, Intan Yoshana and Lr. Payanta [7], “FoodX, a System to Reduce Food Waste”, proposed a food donation system using prototype methodology. They created 4 types of users for the system, application managers, community managers, donors, and volunteers. The application manager had a role to oversee and manage all transactions from each community, donors, and volunteers. Community managers function to regulate the distribution of food from donors and report the results of distribution to donors. They created a Donor’s application to distribute food because not all communities had volunteers, the application for volunteers only served to help in the process of picking up and distributing food.

Aaron Ciaght [8] ‘Smartphone Based Waste Food Supply Chain For Aurangabad City Using GIS Location Based And Google Web Services’, published in 2014, describes the client-server GIS and Smartphone application for the hunger free city. At the client-side App provide facility to donate food to the charity for the help of hungry people. Donors enter basic information like latitude and long quantity of waste food and type of waste along with value and contact number. Charities can pick up that waste food and deliver food to hungers. Completion of registration will place onto server database where charities can store the entries of donor in table format and shows the optimal path between donor locations to nearest charity along with direction. So wastage food can easily deliver to hungry people within a time.

Yue Qui and Chunxian Liu [9] proposed a paper describing an in-kind charitable donation system app driven by social innovation design concept. In this paper Yue Qui and Chunxian Liu developed a mobile app named “Afu” enabling the public to help in need in China. It was developed in a way to promote the respect and collaboration for all charity participants, improve the efficiency of the civil donation and making charity an activity that anyone can get involved at any time. The design concept of “problem solving and meaning building” is applied to the design of AFU charity service which clearly combs the relationship between the chaotic design objectives such as lack of trust, poor information and building a better charity experience.

### III. MOTIVATION

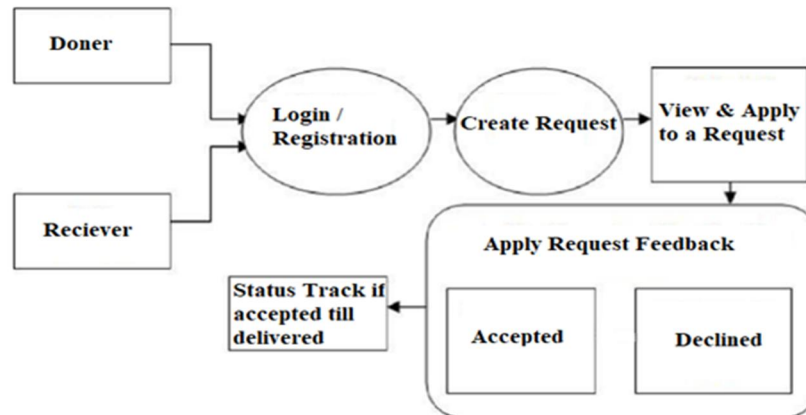
As we know, our world is battling high food wastage, widespread hunger and extensive food insecurity. These are all problems that directly affect the basic quality of life. Moreover, higher food wastage also means that we would need to build more waste disposal facilities, which leads to an unnecessary increase energy consumption. However, by distributing these food leftovers to people who are unable to afford food on their own, we can alleviate their standard of living. So, the value of this product is the possibility of solving all the mentioned problems, without even increasing the food output.

### IV. PROBLEM DEFINITION

Food loss and Food waste is food that is not eaten. The causes of food waste or loss are numerous and occur throughout the food system, during production, processing, distribution, retail and food service sales, and consumption. Overall, about one-third of the world’s food is thrown away. This edible food thrown away could be greatly utilized for nourishment of people in need.

### V. PROPOSED SYSTEM

In this approach, a direct person-to-person food donation system method has been proposed which is more streamlined as compared to other models. The detailed System is as explained below. The block diagram of the proposed system is as shown in the given figure.



**Figure 1:** Block diagram of Proposed System

In this approach, the Doner or Receiver will be able to register either on App or Website. After registration, they will be able to log into the system. After logging in, Individuals/Restaurants can create a request to donate while NGOs can request for food donations. After requests have been created, they will be displayed in the dashboard page to be able to browse through already listed request and either apply for listed donation or supply to a donation request from NGOs by the donator. After applying for a request, it is then processed and sent to request creator for approval. After approval status of it is tracked throughout the cycle of it till delivered.

### 5.1 Advantages

- Use of technology reduce efforts.
- Utilization of extra food to nourishments people in need.
- It also helps in reducing food waste generated by utilizing available food for donation.

### 5.2 Limitations

- Internet Connection is mandatory.
- The user will not be able to insert or view details if the server goes down. Thus, there is disadvantage of single point failure.
- Wrong inputs will affect the project outputs.

### 5.3 Applications

- Useful for NGOs / Organization if there is a need for outsourcing food for under- privileged people.
- In Restaurants / Events etc., where excess food is thrown out, could be utilized efficiently with proper management.

## VI. CONCLUSION

The App tries to narrow down the gap between NGOs and Doners. It serves to give the excess food to the penniless individuals who are battling for nourishment. Thus, connecting the needy individuals with the donors by using NGOs as an intermediary. And also helping in reducing excess food waste by utilizing it to serve the needy.

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