

## A New Approach to Reduce Food Wastage using Ubiquitous Technique

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### Abstract

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 environmental, social, and financial issue. Huge quantity of food is wasted everyday 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 NGOs 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. The proposed method says that if we can connect these two, in such a way that these NGOs 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. Using the cutting edge technologies, we can bridge the gap. Now a day, Smartphone's are available at a highly affordable price and are the best way to keep people and agencies connected.

**Keywords:** Food waste; Food seekers; Food loss; Food recovery; NGO; Food wastage reduction; Food donation

### Introduction

In the country where the commercial status has reached in a stage that tons of available edible food is heaved away as waste in every stage of the marketing. Food wastage is estimated 25% of the available amount of succulent food. The food is important energy demanding product group and resource. The prevention of food waste can be done by contributing to save resources to reduce environmental impact during all stages of marketing system. Nobody intends to waste food in the beginning, some situation in marketing behavior and individual lead to the food waste [1]. People waste edible food as an accomplishment suggestive of our population. Food throwing is a disquieting issue everywhere. The street and trash bins depot have more food as a clue to prove it. The functions and party halls of hotels eject out so much food. Undivided community evolution setup is up to forty percent food is composed is starved.

Fifty thousand crore amount of food is thrown and wasted every time. "World Environment Day" operation conducted in this year is on subject "Think Eat Save". The operation is based on anti-food diffusion and bread loss [2]. The politics action is answerable to needy people facing complication in food today. The civilization and traditions are playing a lead role in drama of wasting edible food. The gigantic wedding conducting consists of largest dinner of variety foodstuff.

The succulent food which is wasted could be reorganizing for human utilization. Throwing available and edible waste food can be simply nourished by someone else and is sheer wastes of resources. NGOs works as food collectors, collects food and redistribute dry food and cooked food from donor to community centers (needy people). The approach deals with collecting the food waste by NGO and donating to needy people (charity homes), considering the types and sources of food. The approach support NGOs to collect surplus food waste from donor and donate that food to needy people.

In this android approach which brings Donor and NGO together with an easy-to-use and reliable android platform and it matches those with more food and with little food. The approach work with telephone (Android mobile), where businesses (Donor) who have registered with approach, can upload details of their wasted food and the time in which food should be collected. The approach then automatically sends a notification to the nearest community organization (NGO) in that area

which donor selected [3]. If NGO accept the offer and collect it directly from the Donor. NGO reject the notification sent by donor (not every food type suits every organization), the offer is sent to the next NGO.

To decrease and utilize the boundless amount of food waste and food surplus produced in all restaurants and clubs, aims in two main outputs:

- The approach makes connection of Donors and NGO that will help them to start a program for the contraction of food waste and the improvement of unsold food.
- Approach enables the matching of Donor and NGO of leftover foodstuff through internet.

### Literature Survey

#### Innovations case studies: Food waste recovery - General information

Jenny Gustavsson et al. elucidated the economically unnecessary food casualty have a direct and adverse shock on the income of both producer (farmers) and buyers (consumers). Given that many smallholders live on the limit of food uncertainty, devaluation in food catastrophe could have an urgent and significant impact on their living. For poor buyers (food anxious or at-risk everyday), the preference is clearly to have approach to food commodity that are alimental, secure and low-cost. It is significant to note that food uncertainty is often more a query of access than a supplying problem. Improving the ability of the food chain could help to get down the price of food to the buyer and thus raise access. Up to the importance of food casualty, making cost-effective investiture in reduction losses could be one way of reaction on the prices of food [4].

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## Food recovery through donations as a response

Celine Davis et al. depict the food activity chain up to the various phases of food yield and ingestion, or in other form off from farm to fork'. The phases include agricultural and post-crop, packaging, physical processing, and commercialism, food retail such as grocery shops; food serve such as hotels, restaurants and social unit, which includes single buyers. Farmers must adapt to changing societal, economical, and biology circumstances, which mean that their exercise may not ever manufacture an effective system. To evasion against illness and irregular weather, farmers traditionally plant more harvest than necessary and end up with a result greater than the industry or market needs [5].

## Economic benefits from food recovery at the retail stage

Aiello Giuseppe et al. stated the paper objective at overcoming this deficiency by proposing a mathematical exemplary showing the economic advantage arising from food recovery for the operators of the food activity chain and in particular for the distributor who can have additional benefits from tax alleviation. Potential performance achievable from other community such as non-profit industry or placental market is also taken into report. The exemplary determines the optimum circumstances which increase the net [6].

## Existing System

Most sustenance banks sort, fount, and reconstruct both gave and bought nourishment utilizing a focal warehousing framework. Generally, sustenance banks accomplice with the nourishment business to reconstruct durable leftover nourishment itemization with the end goal of giving beneficent administration offices, for example, nourishment storerooms and soup kitchens, with fundamental fixings and sustenance choices. Sustenance banks likewise rely on financial gifts to buy more nourishment with an end goal to stuff the mess between sustenance gifts and interest. The significant sustenance bank procures nourishment through an option technique, too. While Community Food Share aides diminish the measure of sustenance going to waste, palatable nourishment still gets left behind or lost experiencing significant change. Group Food Share can and can't take restrain the nourishment bank's capacity to gather everything produced by its contributors. Its unbendable pick-up calendar denies the likelihood for spontaneous accumulations [7-9].

Colossal amount of nourishment is squandered regular in inns and eateries. The waste at marriage lobbies, a gathering lobby is an additionally massive. In a nation where an enormous society is denied of fundamental comforts and do not get feast one time in day, such food wastage is horrendous [10]. NGOs working towards helping the individuals fitting in with under-advantaged society and need to in any event give them absolute minimum prerequisites, for example, sustenance and sanctuary [11]. Be that as it may, NGO confronting issues of lessening the sustenance wastage as they couldn't capable associate the all groups corridor squandering nourishment, and couldn't ready to unite the all shelters and destitute individuals who need nourishment.

## Proposed System

The developing issue by building a sustenance waste diminishment chain of importance with source lessening and nourishment recuperation as the real manifestations of activity. Source decrease alludes to diminishing the measure of nourishment waste created before it happens while sustenance recuperation shows the

preoccupation of produced sustenance squander far from landfills [12,13]. This proposes the most favored strategy for redirection as sustaining hungry individuals, or as it were, sustenance recuperation through gifts. NGO taking a shot at gift administration for humankind reason perceived that the redirection of nourishment waste through gifts, most outstandingly at the retail level, couldn't just lessening the measure of sustenance winding up in landfills additionally expand the sum going toward diminishing craving and enhancing sustenance security. In this approach connects these NGO and Donor with a specific end goal to provide the sustenance to the poor individuals [14-16]. Contributors utilizing this approach have contact with NGO of adjacent and giving about all data of sustenance waste like quantity of nourishment, type of nourishment, serving time (in which food ought to be taken by NGO to convey to penniless people). This warning is gotten by NGO after that having Feedback with giver, NGO Track the area and acknowledge demand and gather the sustenance and give it to the destitute individuals The approach unite these two, in such a path, to the point that these NGOs can persuade the "sustenance to be squandered" without bother, and the inns/eateries/party-lobbies discover these nourishment seekers with no additional exertion then it serves a more prominent reason and that will be an enormous administration to mankind [17,18].

## Implementation

### System architecture

To provide a structure for the developing system, system architecture has to be designed. The architecture must have the important components of the system and the interactions between these system components. Bigger systems are always broken down to smaller subsystems which afford some familiar set of services (Figure 1) [19].

- Hotels/restaurants/party-halls/huge apartments etc. can search for concerned NGOs.
- NGOs can search for potential centers from where they can collect the food.
- Hotels can send notification to NGOs about the availability of food.
- NGOs can send their queries to Hotels seeking info about any food wastage that could be avoided.
- NGOs and Hotels feedback / rating system.
- Integration with Social media to encourage more and more people and household to join the movement and make it a global success on the lines of "The Ice Bucket Challenge".

Figure 2 explains about a flow of food reduction is a visual portrayal of data processing throughout the system. The flow of data miniatures are being involved to demo the way the data has been flowing in a chronology of steps [20].

## Experimental Results

In this section the results obtained with some learning features. The experiment conducted for various task such as sign-in, registration, publishing food, NGO claiming food.

Figure 3 represents the approach that work to reduce food wastage by ubiquitous method. The flow considers the participation of NGO and Donor. Donor will publish the food based on the cut-off time and quantity of food.

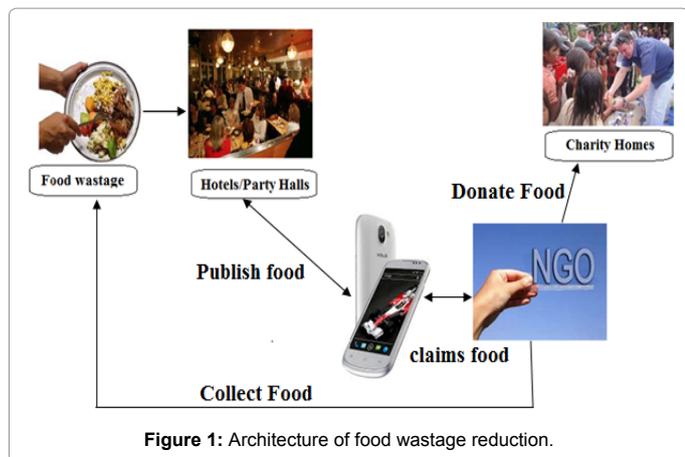


Figure 1: Architecture of food waste reduction.

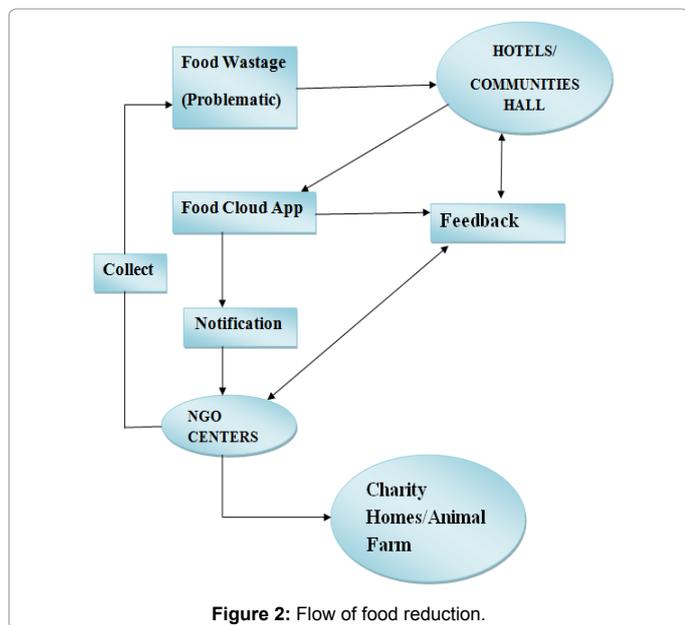


Figure 2: Flow of food reduction.

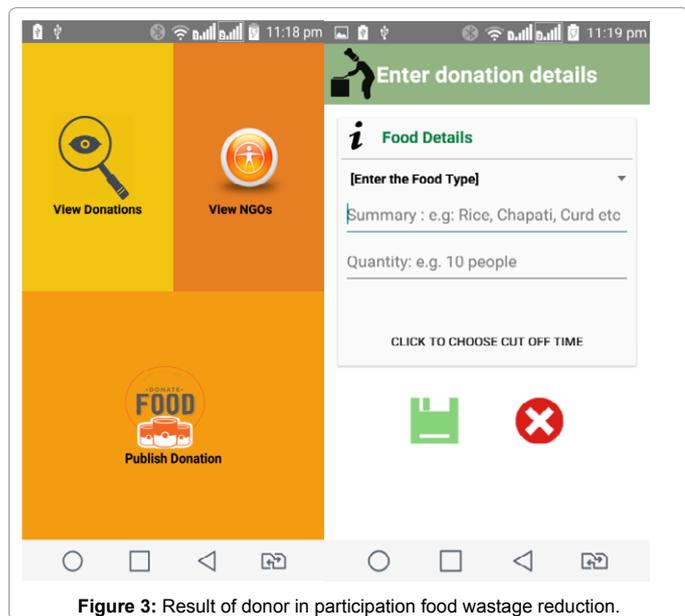


Figure 3: Result of donor in participation food waste reduction.

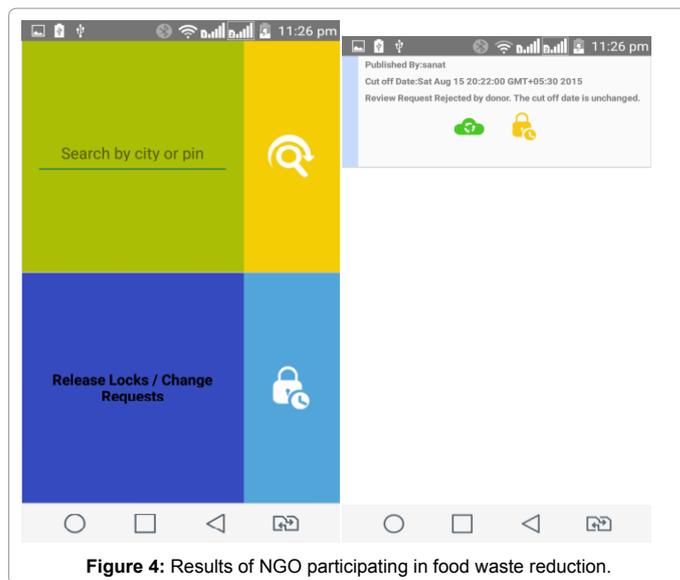


Figure 4: Results of NGO participating in food waste reduction.

Figure 4 represents NGO will claim the food to donate it to the needy people. Claiming the food is to confirm the donor that food will be collected in prescribed cut-off time or the NGO will request some modifications in cut off time to collect food.

## Conclusion

The sustenance approach serves to stay away from crevice between the Ngo and Donor. The approach serves to give the sustenance waste to the penniless individuals who are battling for nourishment. The approach unite these two, in such a route, to the point that these NGOs can persuade the "nourishment to be squandered" without bother, and the inns/eateries/party-lobbies discover these sustenance seekers with no additional exertion then it will serve a more noteworthy cause and will be an enormous administration to mankind. This approach serves to upgrade open picture of inns, eateries who are giving sustenance and it serves to spare cash. It decrease the over buying of nourishment and diminish ecological effects. On the distance it helps penniless individuals to get sustenance with a specific end goal to survive life.

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