

Food Redistributing System Using Android

Nitin R. Shinde¹, Dhanwantari R. Kedare², Nikhil V. Parab³, Shraddha S. Mahajan⁴

¹Prof., Pune Vidyarthi Griha's College of Engineering, Nashik.

^{2,3,4}Pune Vidyarthi Griha's College of Engineering, Nashik.

Abstract- As per survey done in 2017 by FAO (i.e. Food and Agriculture Organization) estimates in The State of Food Insecurity in the World 2017 report, 795 million people in world (12.9 % of world's population) are undernourished and 194.6 million people in India (15% of India's population) are undernourished. Despite of such undernourishment, one third of the world's food is wasted. In light of this situation there is need of system to reduce food wastage ratio and undernourishment ratio. Addressing this need, we propose a Food Redistribution System to help mankind. We propose an Android app for those who want to donate food (Donor) and those who are in need of food (User). Algorithms like k-mean and LCFS are used in the proposed system. Technologies and Languages used to develop are Android, Java, XML and GPS.

Index Terms- Android, GPS, K-mean, LCFS.

I. INTRODUCTION

If only one-fourth of the food lost or wasted globally was consumed it would be sufficient to feed 870 million people feeding nearly all who go to bed hungry every night 12 percent of the world's current population.

1. Food loss and waste drives up the price of food.
2. Reducing food loss and waste is a key strategy towards ensuring food security for a projected 9 billion people in 2050.
3. Food loss and waste has a negative impact on already scarce natural resources.
4. Around 30 percent of available agricultural land is used to produce food that goes uneaten; three times the volume of Lake Geneva in terms of water use is lost.
5. And food loss and waste is contributing to climate change more than most of the world's countries.

This is a year of opportunity to incorporate food loss and waste into agreements on climate change and sustainable development and the Post 2017

development Agenda and beyond. We know the outcome we want, a world in which everyone is able to sustainably feed themselves. the challenge is to keep looking for new ways to form an ambitious action oriented agenda that integrates food loss and waste. We must establish cross sectoral alliances and concrete commitments to reduce food loss and waste by 2030. So we have developed the Food Redistribution System Using ANDROID.

II. LITERATURE SURVEY

Innovations case studies: Food waste recovery and General information

Jenny Gustavsson et al. elucidated the economically unwanted 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 users (food anxious or at-risk everyday), the preference is high to have approach to food commodity that are alimental, secure and cheap. 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.

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 of '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.

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 advantages arising from food recovery for the operators of the food activity cycle and in particular for the distributor who can have extra 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 minimum circumstances which increase the net.

A New Approach to Reduce Food Wastage using Ubiquitous Technique

Jadhav N.H., Narendrababu C.R. and Banu Prakash G.C. stated that, the amount of food waste generated in the country continually increasing, the waste of food along each stage of the food lifecycle is become a serious environmental, 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 unacceptable. 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, Smartphones are available at a highly affordable price and are the best way to keep people and agencies connected.

III. SYSTEM OVERVIEW

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 percent 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 utilize resources to reduce environmental impact during all stages of marketing system. Nobody intends to waste food in the initially, some situation in marketing behavior and individual lead to the food waste. Food throwing is very major 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.

Sixty-seven million ton of food is thrown and wasted every year in India. 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. The politics action is answerable to needy people facing complication in food today. The culture and traditions are playing a main role in drama of wasting edible food. The high class wedding conducting consists of largest dinner of variety foodstuff.

The fresh food which is wasted could be reorganizing for human utilization. Throwing available and edible waste food can be easily nourished by someone else and is only 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 collection of food waste by NGO and donating to people in need (charity homes), considering the types and sources of food. The approach support NGOs to collect extra food waste from donor and donate that food to people in need.

In this proposed system of android approach, we bring Donor and NGO together with an effective and reliable android platform. The approach work with smartphone, where Donor who already registered with this approach, can upload more details of their leftover food and the time before which food should be collected. The approach then automatically sends a notification to the nearest community organization

(NGO) in that area which donor selected. If NGO accept the offer and collect it directly from home of Donor. NGO reject the notification sent by donor (not every food type suits every organization) if not required, the offer is sent to the next NGO.

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

- 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.

IV. OBJECTIVE

- To reduce food wastage.
- To reduce hunger ratio.
- To utilize the food instead of wasting it.
- To improve food donation system.

V. EXISTING SYSTEM

Food Donation System

People donate food by visiting at the orphanage, old age homes or give it to the beggars. Many social activists also take the leftover food from the ceremonies like birthdays, weddings etc. and give it to the needy people. Many NGO'S are working individually on food donation system.

If people wants to donate leftover food, then they have to find the location where it is needed and go to that particular place manually and donate the leftover food.

If organization wants to find the donor for redistribution of food, then they have to find donor individually.

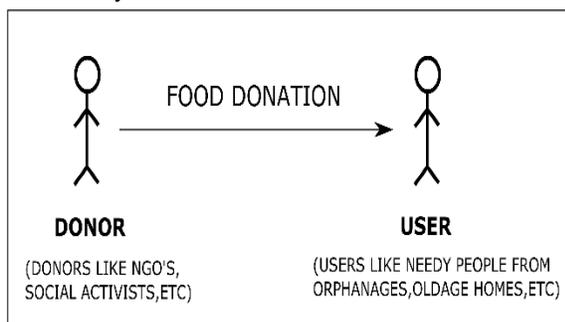


Fig. Existing System

VI. PROPOSED SYSTEM

A. Introduction

In this system the donor can login & enter their Location, amount of food and type of food available. Then a simple notification is given to the user. After seeing the notification, the users among that location can login & can gather the details of the donor. The donor can hold an account in this application & whenever there is food leftover he can login and enter the details of food and location. The user can also hold an account and can retrieve the details. After retrieving the details, the user can collect food from the donor and can redistribute to the orphans or others. This project of food redistribution can be an enormously successful social innovation that tackles food waste and food poverty.

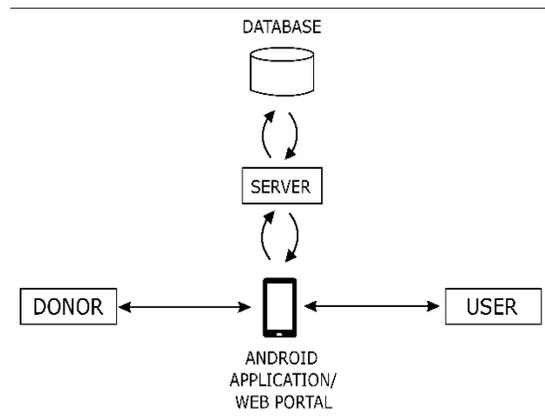


Fig. Proposed System

B. Module

This project consists of four modules.

1. Login & registration
2. Notification
3. Donor
4. User

1. Login & Registration:

This phase involves login registration for both the donor and user. The details are maintained confidential by maintaining separate account for each user. At the same time only the user can view the details of the registered donor.

2. Notification:

This phase involves the notification to the user by the donor. The donor will send the notification which contains the location of food available via

notification bar. This is achieved by using notification button.

3. Donor:

The donor can hold an account in this application whenever there is food leftover he can login and enter the details of food and location. Details of food include amount of food available and type of food.

4. User:

The user can also hold an account and can retrieve the details. After retrieving the details, the user can collect food from the donor and can redistribute to the orphans or others. By receiving the notification, the agent can collect the food and redistribute it.

C. Proposed System Working:

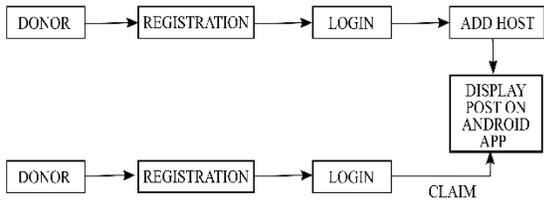


Fig. Working of Proposed System

In this system of Food Redistribution. Initially User and Donor can register by putting some personal information like name, address, mobile number and e-mail address. This registration process will generate username and password for user and donor. After that user and donor can simply login to the system by using their respective user id and password. Donor can add post of available or leftover food by putting photo of food and mention some metadata about that food like food type, best before time, quantity of food and some additional information if wanted. validation of the same post is done by admin side and after adding location post can be display on app. User get the immediate notification of displayed food on timeline. User can sort the nearest location where food is available and he can claim the food and redistribute it to needy people.

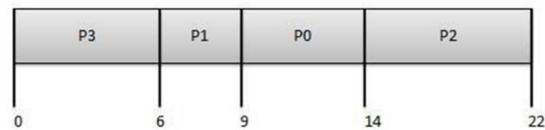
D. Algorithm Used:

1. Last Come First Serve(LCFS)

We focus on the last come, first served (LCFS) discipline of service. While the first come, first

served (FCFS) policy is the most known in practice due to its fairness, the efficiency of other policies (such as LCFS and random selection (RS)) have also been proved. LCFS algorithm uses stack as a data structure. So the most recent entry comes first by means of LCFS algorithm. As we want to display the most recent post first so we are using LCFS for that particular operation.

Process	Arrival Time	Execute Time	Priority	Service Time
P0	0	5	1	9
P1	1	3	2	6
P2	2	8	1	14
P3	3	6	3	0



Example:

There are four processes P0, P1, P2, P3 given below and there is priority assign to each process as 1, 2, 1, 3.

Solution by LCFS:

Solving the same example by k means algorithm i.e. considering lowest priority for executing first we get the safe sequence as P3-P1-P0-P2.

This technique to execute lowest priority process first or recent process first is known as Last Come First Serve i.e. LCFS algorithm.

2. K-means Clustering

- In 1967, J. MacQueen and then in 1975 J. A. Hartigan & M. A. Wong developed K-means clustering algorithm.
- In K-means approach the data objects are classified based on their attributes or features into K number of clusters. The number of clusters i.e. K is an input given by user.
- K-means is one of the simplest unsupervised learning algorithms.
- Define K centroids for K clusters which are generally far away from each other.
- Then group the element into the clusters, which are nearer to the centroid of that cluster.
- After the first step, again calculate the new centroid for each cluster based on the elements of that clusters.

- Repeat the same method and group the element based on new centroid.
- In each step, the centroid changes and element moves from one cluster to another.
- follow the same process till no element is moving from one cluster to another i.e. till two consecutive steps with the same centroid and same elements are obtained.
- Finally, this algorithm aims at minimizing the objective function.

VI. CONCLUSION

This system is an Android Application designed to increase the efficiency of food redistribution system (food donation system) for Those who wants to donate food (Donor) and those who wants to claim and redistribute it (User). Donor can simply take the picture of food and mention some metadata about food like best before time, quantity of food, type of food and easily post on timeline. User get an immediate notification of recently uploaded food item and user can search according to nearest location and claim the food if user wants and redistribute it to orphanages, old age homes, homeless people or needy people.

REFERENCES

- [1] A New Approach to Reduce Food Wastage using Ubiquitous Computing; Jadhav N. H., Narendra babu CR and Banu Prakash GC, 2016.
- [2] Waste Management in Hotel Industry in India: A Review; Afsanehsadat Omidiani, Seyed Mohsen Hashemi Hezaveh, International Journal of Scientific and Research Publications, Volume 6, Issue 9, September 2016.
- [3] Food Safety Evaluation and Food Waste Management An Indian Perspective; Ravi Teja Mandapaka, P. K. Kukkamalla.
- [4] Wasting food- An insistent behaviour. Urban issues and solutions; Schneider F Shaw Conference Centre, Edmonton, Alberta, Canada (2008).
- [5] Food Waste; Carr W, Downing E, House of Commons Library (2015).
- [6] Research for possible establishment of a food bank in Donegal; Nolan D (2014).
- [7] Innovations case studies: Food waste recovery - General information; California Department of Resources Recycling and Recovery (2002).
- [8] Food recovery through donations as a response to food waste: A case study of two grocery stores participating in food recovery program in Boulder; Davis C, University of Colorado, Boulder, CU Scholar (2014).
- [9] The history of food wastage. The Institute of Waste Management; Schneider F. BOKU University of Natural Resources and Life Sciences, Austria.
- [10] Best management practices for discarded food scraps; Barrows B, Oregon Department of Environmental Quality (2011).
- [11] Food waste along the food chain; Bagherzadeh M, Inamura M, Jeong HOECD Food, Agriculture and Fisheries Papers (2014).
- [12] Economic benefits from food recovery at the retail stage: An approach to Italian food chains; Giuseppe A, Mario E, Cinzia M, Waste Management (2014)
- [13] Waste not, want not: Feeding the hungry & reducing solid waste through food recovery; Carol B, Glickman D, Department of Agriculture. Environmental Protection Agency and United States (2000).
- [14] E: The Environmental Magazine; Lindsey B (2011).
- [15] Food wastage foot print: Impacts on natural resources; Food and Agriculture Organization of United Nations (2013).
- [16] Food waste reduction and prevention. Waste-Resource Conservation; Environmental Protection Agency. USA (2013) .
- [17] Think, eat, save; UNEP, FAO and partners launch global campaign to change culture of food waste UNEP (2013).