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## Thrypthi - An Application For Food Donation

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### Abstract

Food is one of humanity's most fundamental needs, ranking first among the three basic need of food, shelter, and clothing. It is significant because it nourishes the human body, allowing humans to continue to survive. However, as the country's population and development grow, food waste has reached new heights. Many people want to help the poor by donating food, but they are unsure how to go about doing so. There are platforms that have attempted to assist people in donating food; the present framework offers a new internet-based application that gives a place for all poor people/organizations to contribute food. This Food Donation paper establishes a venue for bringing together donors and non-governmental organizations. Our application focuses on assisting the less fortunate by bringing together non governmental organizations (NGOs) and ordinary people. Donors will be able to choose from a variety of ways for making a donation. The NGOs will be given the specifics. Our Web and Android application focuses on assisting the less fortunate by connecting NGOs with hotels, restaurants, and caterers.

*Index Terms*—Food donation, NGO, Donor, Application

## I. INTRODUCTION

Food is the most significant and necessary aspect in life because it allows an individual to get rid of hunger while also providing energy and nutrients to the body. It is required by everyone. Starvation is a very dangerous condition that causes malnutrition and possibly death. A person could starve to death if they don't eat. For a long time, India and starvation have gone hand in hand. It is thus because the number of people living in poverty in India is extremely high. Food donation has always been a wonderful thing to do for people. As a result, donating food to someone can make a difference in their life.

Donors can offer food to NGOs through hotels, caterers, or restaurants under this scheme. When there is a food scarcity, NGOs can also seek hotels. This system's goal is to eliminate food waste. The Admin, Hotel/Cater/Restaurant, NGO, and Donor/User modules are the four key entities in this system. Admins can log in and administer restaurants and non profit organizations by adding them to the list and updating it. Restaurants can update their profiles by logging in. They can also look at the accepted food list that hasn't been picked up yet. Access to meal details can be added by restaurants. They can also accept requests from non-governmental organizations. Restaurants can also look at the accepted, pending, and past Access Food lists that have been approved by the NGO. Notifications will be sent to them. NGOs are able to login and use the system. Donors can login and update their profile by providing basic details. Donors can also add a donation request by selecting a hotel or cater or restaurant according to the priority list and they can view their donation status also. Donors will also get notifications.

Section II describes the motivation behind our work. Section III deals with the relevance of our work. The related works are given in section IV. A brief architecture of our work is given in section V. The next section deals with conclusion and future scope followed by references.

## II. MOTIVATION

Food is one of the most important aspects of our lives. It feeds our bodies with all of the essential elements like proteins, vitamins, carbs, lipids, and minerals. When our body receives the energy to metabolism, all nutrients supply energy to our body. Our bodies are healthy, and they work appropriately. When we are injured or ill, the food we eat provides critical nutrients for our bodies to grow and recover. Our food ingredients come from two sources: plants and animals. Everyone requires food, although the amount and type of food required differs from person to person. Donating to the less fortunate is a wonderful way to make a difference in your community.

Donating food to deserving individuals or groups helps alleviate poverty and hunger while also improving community peace, friendliness, and trust. The act of compassion and care for others above oneself [1]. Charitable donations have been shown to raise prosperity and improve health, happiness, cooperation, goodwill, and strong communities. Donating provides a forum for many contributors to learn about the challenges surrounding that particular need. Most people like to learn about the difficulties before donating in order to gain a better understanding of the situation. Donating to the poor provides new information and uncovers new perspectives on societal challenges such as homelessness, hunger, and poverty. It's not difficult to donate food. There are a plethora of food banks and pantries that will gladly accept your donations. However, the issue is that many people are unaware of how to contribute food to those in need. Food is often donated to food banks by large manufacturers, supermarket chains, wholesalers, farmers, food brokers, and organized community food drives. Restaurants, caterers, corporate dining rooms, motels, and other food companies supply perishable and ready-to-eat items to hungry individuals in their communities as quickly as possible. Many food banks and rescue organizations will pick up food gifts for free, saving time and money for contributors. Food banks are professional, community-based organizations that collect food from various sources and store it in warehouses. The food is subsequently distributed to hungry families and individuals through the food bank. To survive, we require nourishment. However, we squander a lot of food on a regular basis. There are restaurants all around the world that squander tonnes of food every day. Millions of people are still starving. Individuals and restaurants in the country, where food scarcity is severe, waste a large amount of food. We created an Android app to connect businesses with charitable organizations to facilitate food donations. Individuals can also donate their unused food through our app. Food given by restaurants or private users can be picked up by a registered charity organization. Our software is designed to assist the less fortunate by connecting NGOs with hotels, restaurants, and caterers. Donors are not required to visit the organizations in person to give food. This is a web-based and Android application. We link NGOs, hotels/caterers/restaurants, and donors here. The accommodation and food items are chosen by the donor. Hotels/Catering/Restaurants will alert NGOs of the request, and NGOs will collect the food and distribute it to those in need.

## III. RELEVANCE

Giving to the penniless not simply helps the beneficiary, it additionally helps the contributor in further developing the physical, mental, passionate and profound prosperity. Nonetheless, you want to do your examination about the beneficent associations that share a similar interest as yours. Prospects in which Donation is:

### A. Education

Donating provides a forum for many contributors to learn about the challenges surrounding that particular need. Most people like to learn about the difficulties before donating in order to gain a better understanding of the situation. Donating to the poor provides new information and uncovers new perspectives on societal challenges such as homelessness, hunger, and poverty.

### B. Community

Donating to the less fortunate is a wonderful opportunity to make a difference in your area or town. Donating food to deserving individuals or groups helps to alleviate poverty and hunger while also improving community peace, friendliness, and trust. Charitable donations have been shown to raise prosperity and improve health, happiness, cooperation, goodwill, and strong communities.

### C. Health

Generosity has been shown to release endorphins, which help to relieve tension and stress by generating feelings of relaxation, peace, thankfulness, and contentment. As a result, those who aid the poor gain from a better immune system, a lower heart rate, more energy, less pain, and lower blood pressure.

## IV. RELATED WORKS

A. The Aahar Food Donation App [1], released in 2021, is a programme that allows people to donate leftover food from events including weddings, social family get-togethers, parties, and events, as well as canteens, hotels, and caterers. They provide a platform for funders to connect with food insecure organizations. The application is created in Android Studio using java and xml, incorporates site association, and will provide a stage for contributors and searchers once they have successfully registered in the system. In the odd event that a client wishes to make an offer, he or she should say something distinctive in the paper. This message will appear in the gifts page as a note to various customers. This message will be stored in the backend's information base. When a note is received, the shelters that want to guarantee the gifts can respond to the contributor and contact him or her.

B. Arfandi Andres et al., 2022 used the FoodLifeSavr smartphone app to construct a food sharing system [2]. The goal of this research report is to encourage people who overeat to donate any food that is still edible to those in need. This smartphone application includes features such as registering new donors who want to join the mobile application and login in existing donors. Donors can keep an eye on couriers who are photographing recipients with food supplied by donors. Donors can also select the food category for donation and enter an amount, track the given food that has been picked up by the courier, and send it to the recipient. Donors can use this mobile application to share their experiences, ideas, and perspectives depending on subjects generated by staff and available threads. In this system, there are six main activities: Register, Login, and Create an Account Choose a food category and quantity for donation. Keep track of food that has been donated, a forum, Photo documentation should be uploaded.

C. Elia Henrichs of the University of Hohenheim in Stuttgart, Germany, proposed a self-learning and self-adaptive food supply chain [3]. This paper provides a method for reducing food waste and improving food safety in the food supply chain by utilizing adaptive systems. Smart sensors that adjust to the food's state and machine learning frameworks that estimate the food's quality and shelf life are among them. To evaluate the system, a prototype is being built. The main goal of this project is to look at how diverse technologies like smart sensors, blockchain, and Edge ML may be integrated into an adaptive system to control the food supply chain. As a result, the design and construction of a prototype are taken into account. In the first step, necessary and appropriate technologies for ML applications are identified, including sensors, hardware, software, and frameworks. Following that, the method and components of data collection, processing, and analysis, as well as adaptive monitoring, are conceptualized and implemented in a hardware-testbed that includes an Edge ML prototype and a comparison cloud configuration. Sketch how to apply the Multi-Level Observer/Controller architecture from Organic Computing for the adaptive system infrastructure in the following section. The productive layer (layer 0) is made up of parts that can be influenced, such as sensors, adaptive shelf life, and transportation routes. There are numerous sensor architectures that can be used.

D. The Foodbank which is the pantry of Australian charities collects food and grocery items from farmers, manufacturers, distributors, merchants, and the general public and distributes them to Australia's dedicated charities and community groups [4]. Foodbank is Australia's largest hunger relief organization, supplying over 2,600 organizations and 1,750 schools with 63 million meals each year. Farmers, wholesalers, manufacturers, and retailers are all part of the Australian food and grocery business, and Foodbank works with them all. Stock that is out of specification, close to expiration, or in excess of needs is among the items donated. Companies may also donate as part of a social responsibility commitment or a cause related marketing effort. In addition, through programmes like the Collaborative Supply Program, Foodbank engages with suppliers, manufacturers, and transporters to get vital staple items that aren't available through normal routes in significant numbers.

E. Food Donation App, a work of Abhishek Datta done as an academic project is an approach in which hotels can supply food to NGOs who make a request [5]. When there is food scarcity, NGOs can also seek hotels. This system's goal is to eliminate food waste. There are three key entities in this system: administration, restaurant, and non-profit organization. Admins can log in and administer restaurants and non-profit organizations by adding them to the list and updating it. Restaurants can update their profiles by logging in. They can also look at the accepted food list that hasn't been picked up yet. Access to meal details can be added by restaurants. They can also accept requests from non-governmental organizations. Restaurants can also look at the accepted, pending, and past access food lists that have been approved by the NGO. Notifications will be sent to them. NGO's can log in and update their profile by filling out the form. They can see and accept the restaurant's request as well as information on the cuisine. They can accept and appoint a person to pick up the meal. NGOs can also make requests to restaurants in times of food scarcity. After a request has been accepted by the restaurant, an employee might be assigned to deliver it and the donor will receive notifications.

F. Raktim Raihan Prova et al., 2021 developed a new mechanism to disperse consumable food waste using a web and mobile platform [6]. This project implements a system that combines the subjects of food surplus and basic needs shortage. The major goal of this article is to design a web and mobile application to redistribute waste food to the needy people in society in order to promote efficiency in the redistribution of consumable waste food. This project implements a system that combines the subjects of products surplus and fundamental needs scarcity. The proposed system will be divided into three parts: The terms "donor," "volunteer," and "recipient" are all used

interchangeably. Donors will publish an ad for donation using a web or mobile application, including all relevant details, and a nearby group of volunteers will be notified via the system. Volunteers will then collect the food from the donor and deliver it to a local processing center. At the local processing center, the food item will be prepared and made ready to serve as the final stage. Finally, a group of people in need will be served processed food.

G. Christina Varghese et al., 2021 debuted a new design, SeVa: A food donation app for smart living, by Christina Varghese et al [7]. This study focuses on developing SeVa, a smartphone application that provides a ubiquitous platform for users to view available food resources in their local region and, as a result, acquire access to food, thereby addressing two key issues: hunger and food waste. This app is relevant to the UN SDGs (United Nations Sustainable Development Goals) and falls within the AI for Smart Living in Smart Cities category. This effort benefits both healthcare and the environment by reducing hunger and food waste, in addition to involving IoT (Internet of Things) and ubiquitous computing. If food suppliers want to donate food via the SeVa app, they can specify the type of food, the quantity of the item(s), the expiration date, whether the items are perishable, and so on. There are a few fields that must be filled in (for consumers to be aware of the food). To assure the freshness of the food before delivery, there are factors such as geographic and temporal ones. Because some foods have a short shelf life, the app includes distance and time limits depending on the addresses and hours of availability. The development of SeVa is based on AI principles, specifically Human Computer Interaction(HCI).

H. Shinta Oktaviana R et al., 2020 proposed the FoodX method to reduce food waste [8]. Excess food from eligible donor usage is collected by the Community and provided to those in need. The goal of this study is to develop a system that connects the community with individuals or organizations looking to give excess food. The FoodX system has already been designed to meet the needs of two different food communities (with and without volunteers). This study examines some of the business processes in existing social communities, as well as the application's design, functionality, and research recommendations. The analysis for this system was carried out in two ways: direct observation and literature investigation. Three food delivery villages were included in direct observation. The study is carried out in order to establish a model that can be used by all of these social networks in order to build a system. This system has four different sorts of users: application managers, community managers, donors, and volunteers.

I. 'No Food Waste' is an Android app created specifically for India. This is an edible food recovery project that distributes leftover food from weddings, parties, and other celebrations to hungry and disadvantaged city residents on the streets, in slums, orphanages, and age care facilities [9]. Donors who have a substantial amount of surplus food can use this app to notify 'No Food Waste' that it is ready to be picked up. The organization collects the food and delivers it to the homeless, as well as slums, orphans, and the elderly. Users may also use the app's map to designate "hunger sites," or locations where people are in need of food, so that others who wish to donate directly can do so. The software requests food that has been cooked within the last two hours and distributes it within an hour of receiving it. It claims to feed over 200 individuals every day in seven locations, including Delhi and Chennai .

J. OLIO is a free app that connects neighbours and local shops and cafes so that surplus food can be shared rather than thrown away, addressing the problem of delicious food being thrown away [10]. Users just take a photo of their leftover food and upload it to OLIO, where neighbours receive personalized alerts and can order whatever they want. After that, pick-up takes occur at the customer's house or store, an OLIO Drop Box, or another agreed-upon site. Since its introduction in the UK in January of this year, OLIO has attracted over 100,000 members, who have together exchanged 150,000 items of food, equivalent to 30 tonnes of food, or 70,000 meals! OLIO allows users to resell or give away unwanted objects, emphasizing the value of products that might otherwise be discarded.

## V. ARCHITECTURE

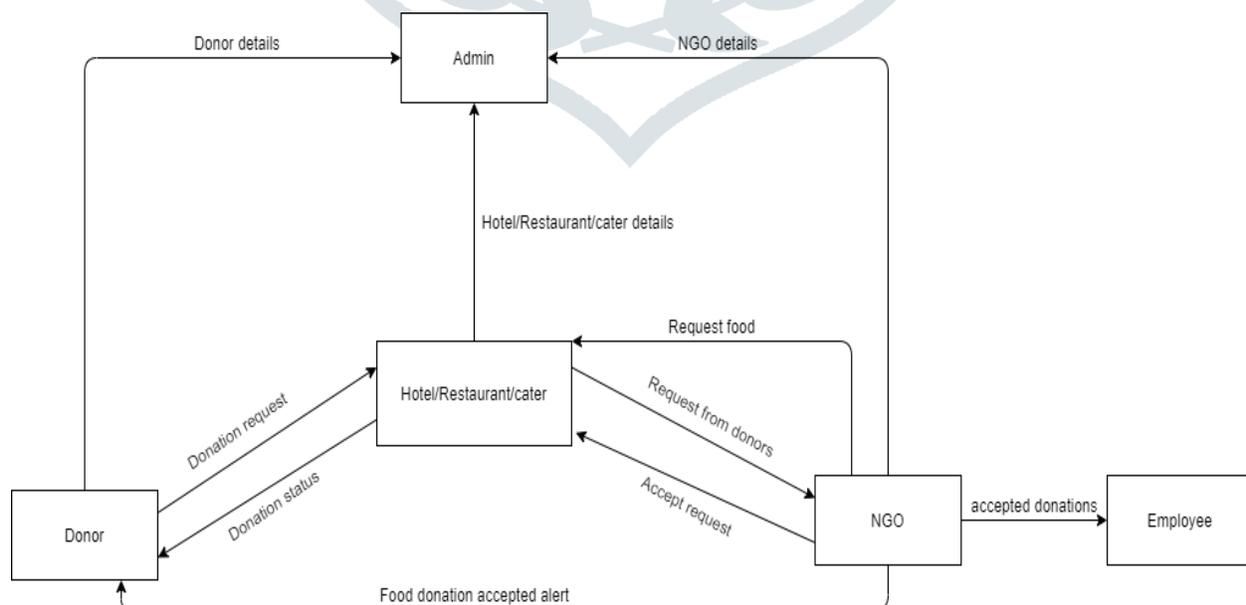


Fig. V.1. Proposed Architecture

This android and web - based food management system can assist in collecting the food from hotels , restaurants and caterers to distribute among those in need. NGOs that are helping poor communities to battle against starvation and malnutrition can raise a request for food supply through this app from restaurants or hotels or Caterers which are registered to FSSAI (Food Safety and Standards Authority of India) and accept the terms and conditions of our app. If food is available they can approve the request and NGOs can collect the food. Also hotels or restaurants or caterers can notify NGOs in case any donor is willing to donate the food by placing orders directly to them. Then, NGOs can decide whether to accept or reject the offering according to their need. Once the request is accepted, the NGOs can collect the food for its distribution. The admin can track the history of restaurants and NGOs . The modules and functionalities of this application are given below:

#### A. Admin Module

- i.Login with username and password
- ii.View restaurant/caters/hotel and edit details
- iii.View Registered NGO and edit details
- iv. View donation requests and their status

#### B. Hotel/Restaurant/Cater Module

- i.Registration for restaurant/hotel/caters with basic details
- ii.Terms and condition for registration
- iii.Login with username and password
- iv.View profile
- v.Change password
- vi.Add food items and price
- vii.Notify food donation request to NGO

#### C. NGO module

- i.Login to account using username and password
- ii.View profile
- iii.Prioritize Registered NGOs based on the food donations they made.
- iv.View food request notification from restaurant
- v.Accept/Reject request
- vi.View/update/edit/delete employee

#### D. Donor/User module

- i.Login to account using username and password
- ii.Add donation request by selecting hotel/cater/restaurant according to priority list.
- iii.View donation status

### CONCLUSION AND FUTURE SCOPE

This application for sharing surplus food is a good way to reduce food waste, and it also motivates food producers to care more about one another. Furthermore, it is commendable that those who receive donations are grateful that there are still people who care about their plight and offer some of their wealth of food in these trying times. This food management system can help non-governmental organizations (NGOs) collect food from hotels, restaurants, and caterers to distribute to those in need. Transparency, clarity, and swiftness are the goals of our application. As a result, during the contribution process, we attempt to alleviate current concerns in whichever zone it is possible for us to do so. If someone wants to donate food, they can sign up for this app and donate the food they wish to those in need. To sum up, our food donation app will assist the needy by linking them with donors through the use of NGOs as an intermediary who will execute their job with the assistance of the software that we will supply.

To break down the barrier between designer and user, the user might be asked for input and suggestions on the application's user interface design.

Various campaigns can be established to encourage individuals to get involved in social work and aid those who are in need in our society.

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