

HungerMap – An Approach to End Hunger

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Abstract— As the population increases, the need for food is also growing exponentially. The economical bridge between the poor and the rich is nowhere near repair, and hence, many people out there are living with scarcity of food and shelter. Food acts as the basic amenity for survival. On the other hand, the restaurants and caterers that provide food and services to the population have a lot of prepared/unprepared or raw food at their disposal. We, in this paper, have plotted an idea where the surplus food from these restaurants/caterers/hotels can be transported or delivered to the needy or the homeless. The paper represents “HungerMap” a website and an application that will act as the bridge between the places that have excess food and those that need food. It includes the source of this idea and also the information that was gathered in the process. It gives an overview of how food wastage and also the adverse effects of food scarcity can be tackled by providing food to the needy.

Keywords — food, waste, homeless, restaurants, caterers, donor, receiver, website, application, donation, leftover, NGO, social, technology .

I. INTRODUCTION

The study of mankind shows that food is a vital ingredient for survival. It has been estimated that around 40% of the food produced ends up as waste [1], which is disheartening fact, considering the current state of world hunger. Adding to this when the issues of the water, energy, labor, and soil nutrients used to grow and transport the food that was eventually wasted were taken into account, food waste ends up accounting for a much higher degree of impact than reduced food supply, and its environmental toll.

India is cultivating more food but wasting up to 67 million ton of it every year, as shown in survey conducted by the Hindustan Times. That waste accounts for more than the national produce of countries like Britain, constitutes enough food for Bihar, one of India’s larger states, for a whole year. The worth of the food lost – Rs 92,000 crore -- is nearly two-thirds of the cost the government invests to feed 600 million poor Indians with subsidized ration under the National Food Security programme.

30% of food produced globally is wasted across the supply chain, and at the same time 795 million people in the world do not have enough to eat of which the highest number (about 194.6 million) is in India[5]. This problem of food wastage does not only include the end product that goes waste, it also accounts for the extensive raw material, water, energy, and efforts invested in making the product. Solving this problem can lead to the beginning of a healthier and wealthier lifestyle for a large portion of the population.

II. MOTIVATION

The idea of doing something for the public has always been playing in the head of almost everyone. Upon seeing some examples of food wastage in real life, in came to our minds that there are many people who cannot afford even 2 meals a day and on the other hand there were places and organizations that were throwing away food on very frequent

basis. The idea then crossed our minds that, we could help these people who starve throughout the days by giving them he food that the organizations producing it that was of no use.

The food that was prepared by the catering Colleges in the city, the hotels that have surplus food (prepared or unprepared), the caterers who have leftover food from the clients orders and many such entities could be the target for our idea. The entities that could be benefited from this are orphanages, child-care centers, and shelters for homeless people, NGO’s etc.

We decided to work on this topic and were confused so as to which platform to use. This is when we stumbled upon responsive websites. These would deal with the transaction of food on a real-time traceable basis. Also, a responsive website would mean easy portability to different platforms which would make it more platform-independent. Bootstrap was one of the first things that came to our minds. The simplicity and ease that bootstrap gives is really time-saving.

III. EXISTING SYSTEM

The system that is currently running is one where things are not automated. The people in need of food have to wander

kilometers to find themselves a meal. Even the organizations that have large produce have to look out for places where the food will be accepted. Currently, people donate food manually by visiting each organization number of times.

The steps for reducing food wastage have already been initiated by websites like www.rescuingleftovercuisine.org [2] and www.annakshetra.org [3]; who have taken efforts to help people donate their surplus food to shelters through their website, where people can donate food, donate funds and also volunteer for various activities. In Mumbai, 'Share my dabba' is another initiative to get left over food from any individuals 'Dabba' (LunchBox) to hungry street children, using just a sticker in collaboration with the Mumbai Dabbawala network. This is a joint effort between 'Happy Life Welfare Society' and 'The Dabbawala Foundation' [4]. The Mumbai dabbawalas deliver 120 tons of food everyday out of which 16 tons is left uneaten [7]. Arham Anna Daan (A project under Arham Yuva Group) – collect food from weddings, parties and temples in steel containers and then distribute this to slum dwellers and construction workmen.

Our project makes food more accessible to people in our community by redistributing surplus food to feed people in need. By reducing food waste, we save money and resources, minimize environmental impacts, and most importantly, move towards a world where everyone has enough to eat.

IV. PROBLEM DEFINITION

HungerMap is an initiative for bridging the gap between the entities that have surplus food and those that are in need of food. HungerMap allows organizations who need food (Let us call them Receivers for simplicity) to search for food availability close to their location, place their order for the food. The webpage also allows the entities with surplus food (Called Donors for simplicity and convenience) (restaurants, event managers, caterers) to update information about the surplus food that they have.

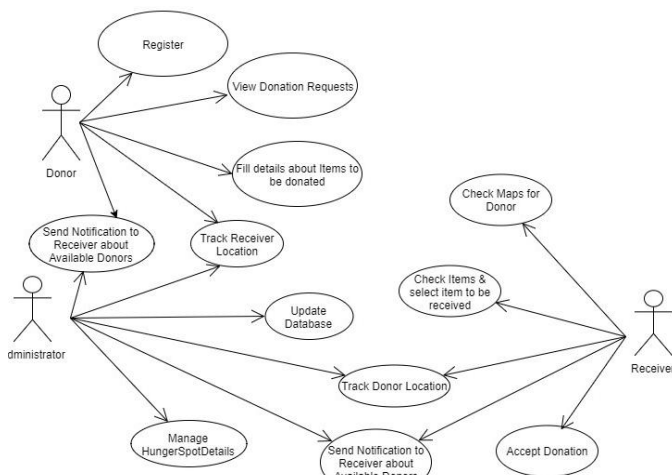


Figure 1: Use Case Diagram

Another feature is the 'HungerSpot' option; it lets individuals post photos of areas where there are people in need of food. They have to post photos with the precise location and also provide their own details for further reference.

V. PROPOSED SYSTEM

The HungerMap project has been undertaken for implementing integrated and optimized solutions for food waste management in the country. Our application will be a portal for communication between the food supplier and the food receiver on a real-time platform.

HungerMap connects food service businesses, food recovery organizations, community centers, and volunteers work together to find perishable food and deliver it to those in need.

The website consists of three main entities; The Donor, Receiver and the HungerSpot. One can use the website by logging in as a donor or a receiver or as a HungerSpot photo uploader. Figure below shows the flow of the project.

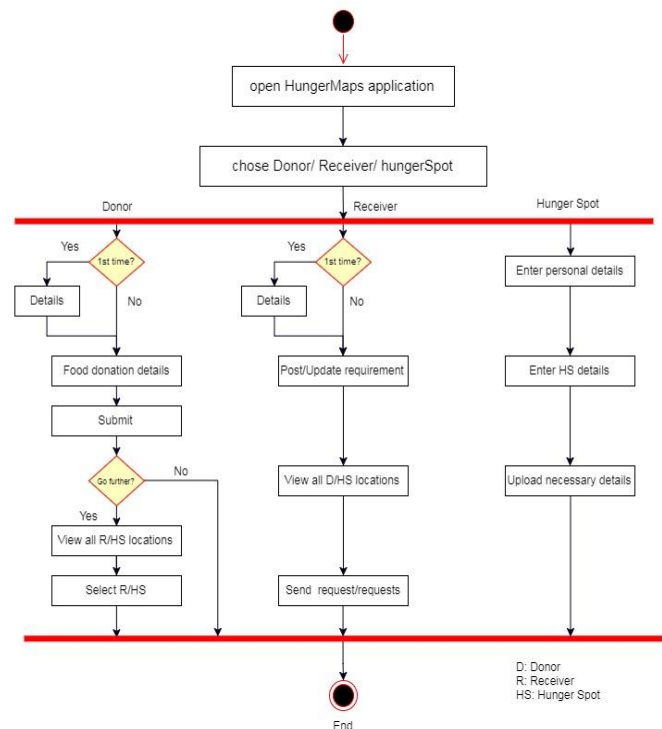


Figure 2: Flow Diagram

The Donor, once registered on the website, can then proceed to fill in the details of the food that it possesses and wishes to donate. It has to provide the basic type of food, i.e. Vegetarian or Non-Vegetarian, and should also mention the main ingredients of the dish. With this the donor needs to enter the quantity of food that it has and also the time and day of preparation, as the food should be consumable by the receivers when they get it. The Donor has the option of uploading a photo of the dish that is has for the receiver to view. Once he does this, the donor will be directed to map where all the receivers that are in its vicinity have been pinned. Also, the

HungerSpots in the vicinity are also pinned. The donor can either click on the pin or can go to the List of the receivers and the HungerSpots. The list shown is sorted according to the distance from the donor's premises, the quantity of food required and also the type of food. The donor can select a receiver from the list and then proceed to donate food to them. The receiver will receive a notification from the website that there is a donor that wishes to donate. Once the receiver accepts the donation, a notification of the same will be sent to the donor and the transaction is complete. For initial purposes the facility of transportation must be provided by the receiver.

The Receiver after registering has to enter its details including the address, contact details and the quantity of food required by the facility. The receiver has to also enter the basic classification of what type of food would it be needing, i.e. Veg or Non-Veg. Once they are done with this, they will also be directed to a map that shows them the donors that are available in their vicinity. The receivers can view the list of donors in their area. The list will be sorted according to the distance, type and quantity of food required by the receiver. The receiver can also select the donor from its list. If the donor has not yet selected any other receiver it can select the receiver from whom it gets a request.

The HungerSpot is an entity where any individual can post a photo of an area where it feels that the homeless people there need food. The individual has to first Login with its email or contact and then it has to upload the photo of the area and also mention the detailed location (Share the location). They HungerSpot uploader has to mention some details about the approximate quantity of food required so as to make it easier for pinning the location for the donors to view. This HungerSpot is now added to the HungerSpot Locations on the Map that the Donor can see.

Few screenshots from the preliminary stages of the website have been added below.

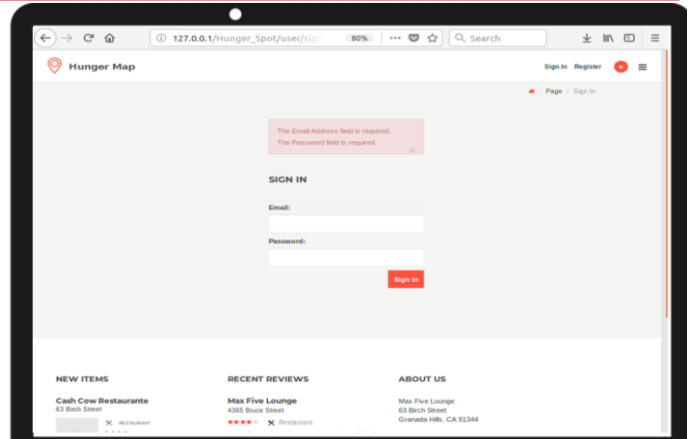


Figure 4: Sign In/Register

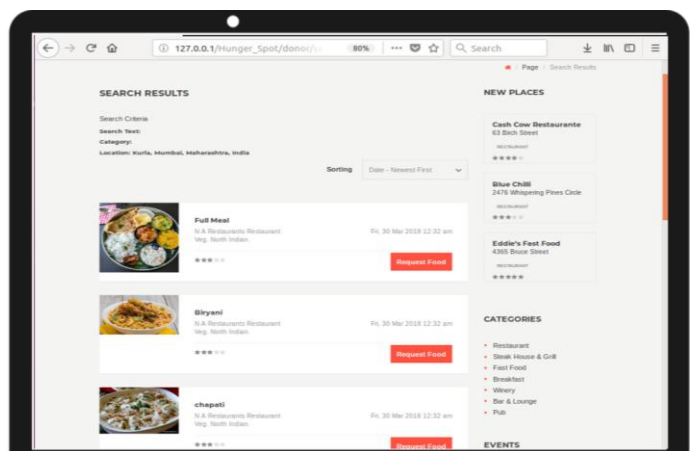


Figure 5: Donors as seen by Receiver

VI. FUTURE SCOPE

Innovation is not exhaustive. New ideas and implementation methods roll out every year. And with that in mind, developments in our project too are inevitable.

Collaboration with the transportation services like Ola, Uber, Swiggy, can prove to be a significant change in the projects development and its impact.

Features like instant messaging in the donation process can also be added. A Volunteer entity can lead to a smoother management of the initiative.

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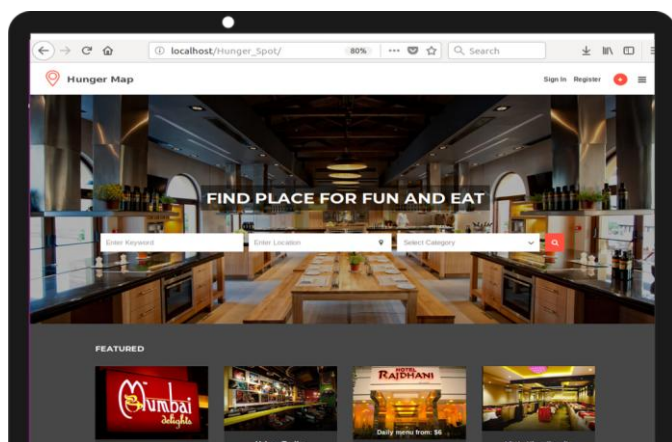


Figure 3: Home Page

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