Robin Food?

Computer Science Senior Project Proposal

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18 September 2018

Abstract

India is the country with the highest population living below the poverty line. There are poor people living on the road, begging for money/water/food. Sometimes, they go for days without being able to afford a single meal. On the other hand, restaurants and even households waste a lot of food. Existing solutions do not take into consideration that a percentage of the population of the world cannot afford a meal a day, leave alone a smartphone and an active internet connection. Existing solutions also do not make it easy for volunteers who wish to do their bit of philanthropic work when they have free time.

This Senior Project proposes to help the people who cannot afford that kind of help. This project will consist of an app which connects restaurants, households, parties and other social gatherings to volunteers (either individual or part of NGOs). People/companies/organizations which have excess food or wastage of food, can inform volunteers of their location and amount of food. Volunteers will then go pick up the food by walking, cycle or car depending on what is most convenient and distribute to beggars. This app encourages people to have the will to donate food on their fingertips, instead of having to go find people every time they have excess food. Finding the needy will not be an issue, because in the biggest cities in India, every small area has poor people sleeping on the road or under some shop. So, this way, beggars do not need to have access to a smartphone for this app, can get a meal, which they typically are not able to afford.

This project can also be extended to helping orphanages, old age homes, and homeless shelters directly. It is not that Food Wasters do not want to help the poor, sometimes, they do not have the time/means to do so. This encourages people so donate food instead of throwing it away, and it helps one more human being to have a meal in a day (sometimes, days).

Background

Food is a necessity in life, and unfortunately, hundreds of millions of people in India cannot afford even a single meal every two days, whereas, more financially stable individuals and families waste food daily. This project is real-time information distribution to best match volunteers who are wanting to help reduce the hunger rates of the country and available excess food from households, restaurants, parties etc. It is a service that gives people, restaurants, and parties who have extra food that they don't need or would rather throw than store, a way to help the ones who need it. It helps reducing the hunger statistics by giving a medium via which people can donate leftovers without having to go the extra mile, which people might want to, but usually do not have the time to.

There are a few similar solutions in the market, but here is why each would not work in a highly populated country like India where 270 million people make less than $2 a day.

OLIO - This app connects neighbours with each other and with local shops so surplus food and other items can be shared, not thrown away. This gives extra food within a short radius, but from people who don't need food to people who can afford food. It also is a sharing system,

where there is a responsibility to return the favour. Whereas, this Senior Project gives left over extra food to people who need it and cannot afford it. This project also does not have any obligation to return the favour, it is a philanthropic act.

WINNOW - Kitchen staff can go about their day in the usual manner but with just a few clicks they can track how and what food is wasted. Our system provides both real-time and regular reporting on transparent and measurable data, so that you can easily identify areas for reducing your food waste. This app informs you on how much waste you produce and how to control it. Willow informs you about your wastage, but doesn't do anything to help you overcome it. On the other hand, this Senior Project actively helps the poor and needy in a country like India to receive the resources they need.

FoodForAll - Food for All is a mobile app through which hungry people can buy restaurants' leftovers at a discount, helping to increase access to affordable meals while also reducing food waste. This way it gives food to the people who need it at subsidized rates. This would work well in a place where the needy can afford phones and an active internet connection. As compared to this Senior Project, which helps us reallocate food to people in dire need.

Objectives

This Senior Project is intended to fulfill more than just its grade requirements. It looks forward to solve a humanitarian issue faced in one of the most populated countries, India. The purpose behind this was to make a difference where we can. Food and water are such basic necessities which one fifth of second most populated country cannot afford, and the same food and water is wasted by the kilograms every day in other parts of the same city and country. This app will strive to try to reduce the hunger problem in countries like India by delivering excess food (which is likely to be thrown because of the warm weather conditions) from the financially stable to the needy. This gives numerous people the opportunity to do their part in social work by taking food that would be usually wasted and donate it to the people who typically can not afford a meal a day. This not only benefits the needy but gives a more flexible chance to volunteers to help out with social work, whenever they have the time. This way, food wastage will decrease, and reallocation of resources to the needy will be made an easy process.

To solve this problem, this app will have a login and sign up page, where you can either choose "Food Donor" or "Volunteer" as your title. Once a food donor logs in, he can do the several things. He can donate food. By clicking on this button, by which he can mention his real-time location, amount of food and special needs required like an ice box. As soon as he puts out his food, all volunteers would get a notification, where the first one to accept this, has to go to the donor's house, collect food and distribute to the needy. One can pick up as many tasks as he likes. Once the volunteer picks up the task, contact details are shared, so coordination becomes easier. This can be extended to bigger nonprofit organizations who can sign up as volunteers. They have more resources to distribute the food. Homeless shelters can also sign up as volunteers, the people picking up the food will be the same as the people needing it.

Significance

Around 21.25 percent of the population live on less than US$1.90 a day, and levels of inequality and social exclusion are very high. India is home to a quarter of all undernourished people worldwide, making the country a key focus for tackling hunger on a global scale. Approximately 300 million people don't eat a meal a day, and this was the driving point for this Senior Project. Food is not a privilege, but it has become one in India.

This project strives to overcome the economic disparity in countries like India to help hundreds of people. This project can be extended to other commodities like flowers, clothes, toys etc., but that is not a necessity for people. You do not need flowers or toys to survive. But one does need food! The end goal is to help the poor live a little better life, by not expecting any extra help from anyone, but by just informing the volunteers of extra resources.

Methods and Procedures

The illiteracy rate in India is 37%. This project will have a very simple yet sufficient interface to accommodate people from all backgrounds, and to make sure it is a easy and quick for donors to inform volunteers of their extra food. The login page will only have these three functionalities - Login, Sign up, Forgot Password. The sign up (registration) process must be simple and only require necessary information - Name, phone number, donor/volunteer. We will not ask for the address yet, to prevent storing the address, and also make it possible for donors to be able to donate food from more than one place, may it be home, parties, friends home etc. This project will also not require customers (especially volunteers) to login every time they open the app. This is because, volunteers must be notified of donating options even when their app isn't open. Upon logging in, donors will see the following options: 'Donate food now' and 'Donate food later'. Donate food now will then have the following details which will need to be filled out - 'What food', 'Pick up from where' (potentially implement Google Maps), 'Special Needs'. Donate food later will have these fields too, along with 'Pick up time and date'. Another nice addition (if time allows) would be implementing GoogleCalender API for the 'Donate Food Later' option.

For Volunteers, once they login, the interface would include their 'Past Volunteering Deeds', 'Current available possibilities', and another button which has 'Potential future donations', which they could sign up for beforehand. Upon advancement, an algorithm based on the location of volunteer will filter which volunteers can see which available donations. This will be very important to make sure tasks are within reachable time and to prevent volunteers getting donors information from hundred miles away. This project will attempt to implement Google Maps API for donors to share their real-time location, and for Volunteers to Google Map their way there (if route is unknown). This Senior Project is based on trust and merit. We are trusting donors to give edible food, which has not gone bad. We also trust the volunteers to safely deliver the food to the needy. This project will be using Firebase as our database to securely store user IDs. Firebase is a widely-used database by google which stores information safely.

Expected Outcomes

Upon download of the app, the donor and volunteer will be able to create an account with a simple password and some other necessary information. They will be able to stay logged in even upon closing the app. When a volunteer logs into his account, he will be able to see his past volunteering acts, where he can post photos if he likes. He will also see an option to view current available tasks within a specified radius. The third option will be future available tasks, for which the volunteer can sign up for a task on a future date and time. When he picks up a task, he will see the address of the person and the details of the food - its quantity, type of food (meat or vegetarian) and if there any special needs like an ice box.

When a donor logs into his account, he will be able to see his past donations, where he can post photos if he wishes to. He will then see two option which say Donate Now and Donate Later where he can offer food now or at a future time and date. When he chooses either of the option, he will have to put in an address he is located at. He will also be expected to put in details about the food quantity, type (meat or vegetarian) and if it requires any special needs like an ice box.

Then there will be real time matching for these two groups. Even if a volunteer isn't active on the app, he will receive a notification when a new task close to him comes up. If a volunteer picks up a particular job, the donor will get notifications that his task has been picked up by a volunteer. I would also like to eventually try to incorporate a way to send out emails as soon as a donor adds a task or when a volunteer picks up a task.

Timeline

DATES	EXPECTED TASKS TO COMPLETE
September 28	Learn about Android Studio, Firebase and how to implement Google APIs
October 12	Start coding - Create a login page with forget your password link. User can Log in and stay logged in
October 19	Forget your password link will send an email to user to reset
November 2	Donor users can start offering tasks
November 23	Figure out which algorithm will allow which tasks to be shown to which users in real time.
December 7	Volunteers will be able to pick tasks for current and future dates
December 21	All users will be able to post pictures.
Winter Break	Buffer period for back log

January 25	Implement Google Maps API to help users share location in real time
February 8	Implement algorithm for choosing volunteers.
February 22	Be able to send real time notifications to volunteers to offer tasks and to donors once the task is picked up
March 8	Try to create group users like NGOs and shelter homes
March 22	User will be able to update profile information and start a weekly donation task
April 5	Finishing touches and final app presentation

Special Considerations

I would like to use Android Studio to develop my app which will implement Firebase as its database to store the users and their login credentials. I will need to research more on these and teach myself how to use these technologies. Because of previous experience with Java, I believe Android Studio will be the best medium. Additionally, I will need to learn how to implement Google API such as Google Maps to be able to provide real-time location of users. I will also refer to Lynda for other coding techniques as and when required.

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