Food O Connect: A Web-Application based on the UN SDG Goal 2 Zero Hunger

Dhruval Pinakin Patel,

University of Regina, dhruvalpatel333@gmail.com

Abstract: Focusing on the UN SDG goal 2 Zero hunger, I have developed a web application that provides a common platform to all the NGOs to connect internally and share the details as well as resources they have, to help the needy people. Able to track the resources where and when they have used and provide the transparent process to all the enrolled people. Moreover, the common citizens will also be part of the application by enrolling themselves into the application and contribute from their end to help the needy people. They can able to donate, raise the campaign and volunteer themselves through the application. Also able see the available NGOs enrolled into the applications and the resources they contain.

Keywords: Web Application, SDG Goals, Zero Hunger, Good Health and Well-Being, User Interactive, NGOs, Common Citizen.

1 INTRODUCTION

As per the UN research, it shows that around 690 million people, which is around 8.9 percent of the world population suffer from hunger [1]. Around 2 billion people in the world did not have to receive proper nutritive food in 2019 [1]. Before the pandemic, there was already food insecurity however, after the pandemic it has triggered the food insecurity to a higher level [2]. Small scale food producers like farmers and other middle-class people are highly affected by the crisis of COVID19. There are several government-issued programs running for the benefit of needy people but still, it doesn't reach all the needy people and many die due to not receiving basic food. Moreover, certain NGOs are working for the needy people to provide them food and basic necessity. However, they also face several problems of lacking resources. Like there should shortage of volunteers, finds, food or the other resources. At that time it is hard to find the resources instantly or spontaneously.

Furthermore, if a common citizen wants to help or contribute toward society then sometimes that also becomes complex. As they need to find the needy people or need to know what are the available NGOs nearby them. Also if they want to volunteer in any of the NGOs then again they need to find the Ngo's details and the process to apply over there. In spite of having websites of NGOs, it sometimes becomes difficult to find the website and then apply or contribute over there. Exiting technology consist a website for each NGO's. However, there aren't any common platform available where then can share a resources or able to see the details of each other. Also, there are many NGO's which might not know or recognize to everyone. If anyone want to even volunteer to any organization then also they have to search for a lot of details like which is the nearest NGO, about the NGO, does they need extra volunteer and many other details they need to collect. There is not a single platform available where they can find all the NGOs and there details and also the process to apply and donate the funds.

Also if we consider the community orientation so currently it is growing and restless. The main aim is to reach most people and fulfill their needs by providing a certain platform or the knowledge of availability. They are widely spread across different locations all over the world. To deal with all the above problems there aren't any available solutions provided. So to resolve all the above issues I thought to develop a web application that deals with the above issue and makes their task easier. So the idea behind the website is to make Ngo's tasks easier and transparent to all the peoples. Through the web application, all NGOs will have a common platform to enroll themselves and able to share the resources like funds, food, volunteers, and other required resources. Also able to track the resources and use them as per the needs. By this, the process of achieving zero hunger will increase and become efficient. With the proposed system they don't need to meet physically and able to communicate online. They can discuss the regarding the process of any of the programs that need to implement internally. Also, available volunteers can also be a part of the discussion and provide their ideas and thoughts to the organizations. People will able to connect and build new relationships by joining the community. People will serve others and provide their contribution to society.

2 METHODOLOGY

Basically, the whole web application was divided into three MVPs(Minimum Viable Product). According to Eric Ries, "MVP is that version of a new product which allows a team to collect the maximum amount of validated learning about customers with the least effort" [3]. So basically MVP is that we produce an actual product that might not be completed but that can be fully functional and adopted by anyone and can be worked further with minimal guidance. So the complete project was done step by step:

2.1 Requirement Analysis

In this stage, we gather and analyze the data through various documents. In the community characteristic document, we analyze the diversity and the connectivity of the community towards the world. Along with that we also analyze the technology aspiration and its orientation. In the technology configuration inventory we have found out the various tools and the existing platform that has been used by the community currently and also noted their features according to the tools and platforms. This followed by drafting an emerging picture to provide a clear image of the proposed application which can bring certain innovations to the community. With the help of a Business case document, we can able to analyze the opportunity that can be achieved via the proposed system.

Through stakeholder analysis, we have categorized the users of the application as well as the handlers. There can be various users like Common citizens, NGOs, event managers, Hotel management, needy people, etc. In the project scope, we have provided the flow and the process of the application which describes how it goes and what should be achieved in different phases. Certain function requirements like registration, login, different functions like volunteering, funds, resources, etc., and Technical requirements like HTML, CSS, PHP, JS, SQL database are mention in the project requirement document. And in the last Activity schedule, we have mentioned the workflow of all the MVPs.

2.2 Software Design and Architecture

In this stage we have created the base of the project by designing the Prototype, Use-case diagram, Class diagram and Work flow of the application.
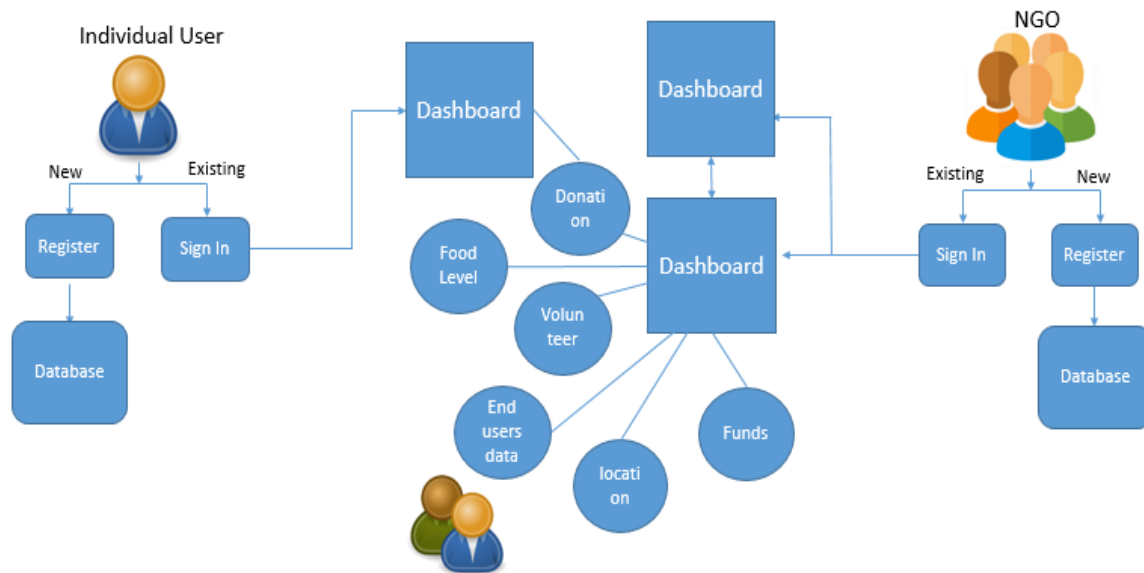

Fig 1: Work-Flow Diagram

The above pictorial representation shows the basic workflow of the application. Here both NGOs and the Individual users need to register themselves first in order to sign in to the dashboard. For registration, they initially need to provide the basic detail as well as email id and need to set username and password which help them to sign in to the dashboard. After login, they can able to access different available features. All that data available through the backend database which contains all data of the users and provided details. Application is basically divided into two modules:

2.2.1 NGO

In this module, only NGO's are able to do the registration where they have some of the extra features compare to other module. Here they have features like:
- Volunteer: User can able to post the details of number of volunteers they have.
- Funds: User can able to post the current amount of fund does the organization consist.
- Food Allocation: They will post the data of number of people they can feed with the amount of food they have.
- Location: Provide the current location where they exist.
- Charity & Donation: People can able to make donation using this detail of payment.
- Needy People: User will post the number of needy people data they have.

So this all features NGO consist which provide the clear image of the NGO and its work they are doing for the needy people. Moreover, which the help of these, other NGO's can also able to see the details and share their resources as per the need and availability.

2.2.2 Common users:

So this can be multiple types of users like a common citizen, a volunteer, investor, hotel, or event manager. And they have some of the fewer features compare to the above module. The feature consist:

➢ Fund Raiser: This feature helps user to organize any event or post any blogs to raise the fund. However, this feature is not functional completely so that can be taken into consideration for future work.

➢ Volunteer: Here user can able to do the volunteer in any of the enrolled NGO's to the application.

➢ Charity: User can able to donate the funds to the existing NGO that are enrolled to the application.
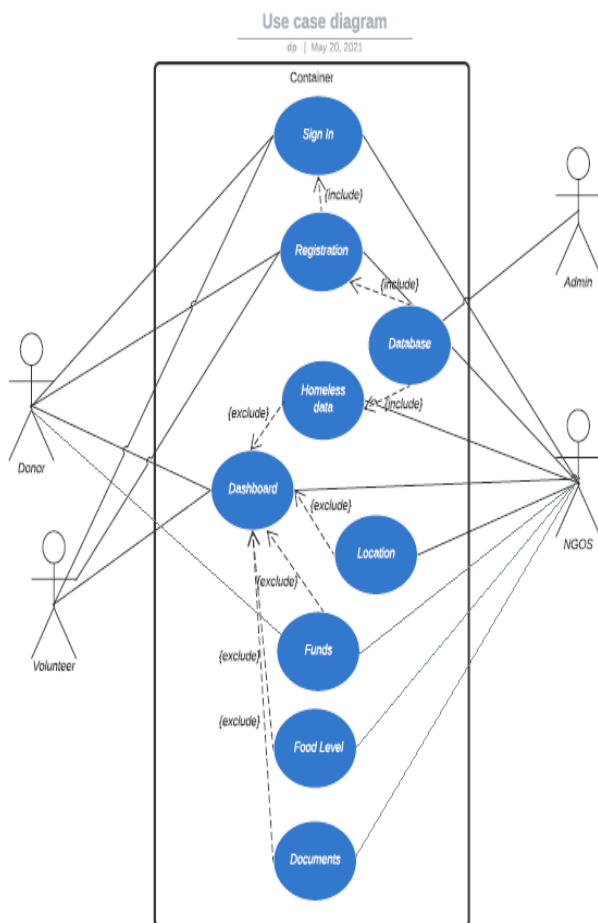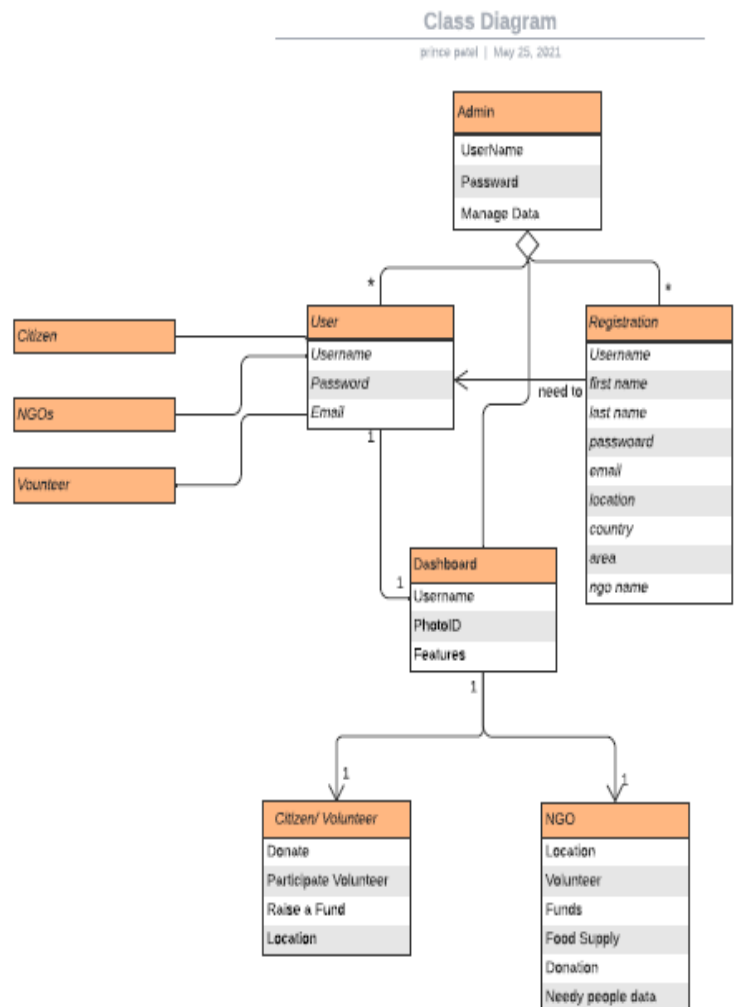

Fig 2: Use-Case Diagram

Fig 3: Class Diagram

2.3 MVP Development

This is the major phase where the implementation has performed. All the above activity and the research is been combine for implementation of the application. It is basically divided into three MVPs:

2.3.1 MVP1:

The major aim for MVP1 is to develop the front-end pages. It consists of the login page, registration page, feedback page, and the most important the front page which is the face of the application. Different content has also added to that page. Complete front pages were designed using technologies like HTML, CSS, Bootstrap, and JavaScript. With the combination of these technologies, I have designed the front end. And the time limit of the MVP 1 was One Week. Within this time period MVP, 1 was developed.

2.3.2 MVP2:

In this phase, the main focus was the database and its connectivity. I have used phpMyAdmin for MySQL and XMPP server to host the application in my local DB. The whole a connectivity was done using PHP. Moreover, I have created the different tables in the database to store the data fetched from users.

2.3.3 MVP3:

This is the last phase where a final touch has to be provided to the application. In this phase, I have focused on designing the dashboard for both NGOs as well as Common citizens. It consists of the same technology as the front end. Moreover, in the dashboard, I have included some more pages like user profiles where users can able to edit their basic details like email, address, name of NGO, etc. I have also included the data update page where the admin of the NGO can able to update data on day to day basis so that all other people who watch their page can be up to date with the latest information and also able to synchronize within NGOs. It also consists of a page that contains the list of enrolled NGOs by which they can easily able to see the profile of any NGOs and also make a donation or volunteer for that NGO as this feature is available to both end-users. The time period of this MVP is the same One Week. After designing the dashboard all the pages were integrated with the database to maintain the flow of data.

Moreover, there are several changes done as I have discussed above in MVPS, as it provides operational excellence and good quality. We can also consider the term TQM(Total Quality Management) basically it describes a management approach to long-term success through customer satisfaction [4]. Here all the members are part of the process for improving the process and services of the product.

3 RESULTS AND DISUSSION

As the current application is not live so the result cannot be obtained. However, that can be predicted that what are the outcomes after introducing the application to production. The main benefits can be seen in the management of NGOs and resource sharing. There are certain different process can be followed before implementing the project so that the process will be easy and more effective.

As we know the Cathedral and Bazaar approach an essay and later a book by Eric S Raymond on software engineering method which examine the struggle between top-down and bottom-up design [5]. Similarly, the flow of the project should also be move from the cathedral to the bazaar approach where each developer can able to view that and perform the changes. Furthermore, while developing any of the software or the product, back in mind we always have to think that what we are imparting how that influence society, and what are the outcomes. Considering that in my the application has developed in benefit of society.

The approach of agile design thinking, user story mapping, and the prototype design have provided a broader view to developing the application and it was able to give more understanding from user perspective that what changes can be done to make it more efficient and user friendly for the clients. Also, it will provide us a clear picture regarding the application that we are imagining to develop, and with the help of that we can able to track our progress easily while developing through different phases.

Till now there aren't any applications available that provide the common interface or platform to all organizations to manage their resources and share with other available organizations and help society. With the proposed application people can be more aware regarding the work of the NGOs as well as able to make a contribution towards the society in terms of donation or in terms of volunteering themselves for the help. Along with that, no Ngo will face any shortage of any resources like funds, volunteers, needy people data, etc. As all the Ngo's be synchronous through this application and see the status of all ngo in terms of resources. If any ngo face the shortage then the surplus amount of resource ngo will help the shortage one. This way all the organizations can be able to help each other internally without any external help. Here the ADKAR model of change management which refers to Awareness, Design, Knowledge, Ability, and Reinforcement is also something that needs to be considered for the community. As if the community is not aware of the application or the not able to use it then this model will play an important role in a change. It generally focuses on individual change [6]. So initially we need to provide awareness for the change. Then need to generate desire within them to adopt or support the change and provide the knowledge of the change which is further followed by the ability to implement and reinforce to sustain the change [6]. Which the help of the above model we can make people use the application and they can adopt the change easily.

4 CONCLUSION & FUTURE WORK

From the above-proposed application, it is concluded the managing the resources within the NGOs will be easy. End results into the more help can be provided to the needy people ineffective time period and the motto of achieving the zero hunger will be in progress. People can also be able to be a part of this good cause by proving help in any manner, whether it is through donation or being a volunteer to any of the events or the organizations. This way they are able to contribute to society.

For future work, there can be a lot of features that can be enhanced and also introduce in it. The first feature that can be worked on future will be the mapping of people. This feature can be included in the user portal where a map will be given and whenever the user will open the map it will show the need people around them within a 5 km of radius. This data will be collected via NGO. By this people can provide or donate the food by themselves to needy people they don't need to be dependent on anyone. Other features need to be worked on is the raise the campaign where common user can raise a campaign by their end to collect the funds and help the needy people. A search bar will also be introduced where all users can navigate or find all the details by a simple search. That can be included in both the portal. Also, a chat feature can be added so that users within themselves can communicate via chat application internally through the application. For example, Ngo can able to communicate with other NGOs and also with users to clear their queries and wise versa. Other small features like the time update feature can be introduced in all the data blocks. So that whenever any data has been updated or change that can be seen to all other users that at what time the changes have been made. And final things like enhancing the existing feature and validating the NGOs and security enhancement can be to focus at the end.

REFERENCES

[1] https://www.un.org/sustainabledevelopment/hunger/

[2] https://www.un.org/sustainabledevelopment/wp-content/uploads/2019/07/E_Infographic_02.pdf

[3] https://www.agilealliance.org/glossary/mvp/#q=~(infinite~false~filters~(tags~(~'mvp))~searchTerm~'~sort~false~sortDirection~'asc~page~1)

[4] https://asq.org/quality-resources/total-quality-management

[5] https://en.wikipedia.org/wiki/The_Cathedral_and_the_Bazaar

[6] https://www.prosci.com/methodology/adkar