**Food Bridge - Bridging the Gap Between Food Sources and People in Need**

# ABSTRACT

Food Bridge combats the twin problems of food waste and hunger by creating a seamless connection between hotels with excess food and orphanages struggling with food insecurity. This innovative project hinges on a user-friendly web application that acts as a communication bridge. Hotels can leverage this platform to post real-time alerts about their surplus food, specifying details like type, quantity, and preferred pick-up times. Orphanages and other authorized recipients benefit from a notification system tailored to their location and preferences, ensuring they're promptly alerted to available food before it spoils.

The impact of Food Bridge extends far beyond simply connecting donors and recipients. By diverting edible food from landfills, the project plays a crucial role in promoting environmental sustainability. Reduced food waste translates to less methane emissions from decomposition, while also conserving valuable resources used in food production. Furthermore, Food Bridge directly addresses food insecurity by providing orphanages and other vulnerable communities with access to nutritious meals, a critical factor for overall well-being, especially for children.

This platform goes beyond efficiency by fostering collaboration and social responsibility within the community. Hotels play a vital role by donating surplus food, while orphanages and other recipients benefit from this generosity. Food Bridge strengthens the social fabric by encouraging businesses to give back and participate in a more sustainable and equitable food system. This innovative approach has the potential to create a positive ripple effect, promoting environmental responsibility, enhancing food security, and fostering stronger communities.

# CHAPTER 1

## INTRODUCTION

### 1.1 OBJECTIVE:

Food Bridge's primary objective is to establish a seamless connection between hotels with surplus food and orphanages facing food insecurity. This web-based platform aims to achieve the following:

* **Reduce food waste:** By diverting edible food from landfills, Food Bridge promotes environmental sustainability.
* **Enhance food security:** Orphanages and other authorized recipients gain access to nutritious meals, improving their well-being.
* **Foster community connections:** The platform facilitates collaboration and social responsibility within the community by connecting donors with recipients in need.

### 1.2 PROBLEM STATEMENT:

Food Bridge addresses two critical issues: food waste and hunger. Here's a breakdown of the problem statement:

* **Excessive food waste:** Hotels discard a significant amount of edible food every year. This wasted food represents not only a financial loss but also a missed opportunity to nourish those in need.
* **Food insecurity:** Many orphanages and other organizations struggle to provide adequate and nutritious meals due to limited resources. This lack of access to food can negatively impact the health and well-being of individuals, especially children.

Food Bridge aims to bridge this gap by creating a system that efficiently connects those with surplus food to those facing hunger.

### 1.3 SCOPE OF THE PROJECT:

The scope of Food Bridge encompasses the development and implementation of a user-friendly web application. This application will cater to both hotels and orphanages, offering the following functionalities:

* **Registration and account management:** Hotels and orphanages can register and manage their accounts, including specifying preferences and updating relevant information.
* **Real-time notification system:** Hotels can post alerts about available surplus food, including details like type, quantity, and preferred pick-up time. Orphanages and other recipients will receive instant notifications based on their location and preferences.
* **Communication and coordination tools:** The platform facilitates communication between donors and recipients, ensuring smooth scheduling and coordination for food pick-up and delivery.

It's important to note that the current scope focuses on connecting hotels with orphanages. The project might consider expanding its reach in the future to include other establishments with surplus food and a wider range of recipient organizations.

### 1.4 ACHIEVEMENT:

Food Bridge anticipates achieving positive outcomes in several areas:

* **Reduced environmental impact:** By minimizing food waste, Food Bridge helps conserve resources and reduce methane emissions from decomposing food in landfills.
* **Improved food security:** Orphanages and other recipients gain access to a reliable source of nutritious meals, contributing to better health and well-being.
* **Strengthened communities:** The platform fosters collaboration between businesses and social organizations, promoting social responsibility and a more connected community.

The success of Food Bridge will be measured by the amount of food redistributed, the number of users actively participating on the platform, and the positive feedback received from donors and recipients.

# CHAPTER 2

## LITERATURE SURVEY

# CHAPTER 3

## SYSTEM SPECIFICATION

### 3.1 HARDWARE REQUIREMENTS

The application has been developed with the system having the following requirements:

* **Processor:** AMD Ryzen 5 5600H with Radeon Graphics, 3301 MHz
* **RAM:** 8 GB
* **Hard Disk:** 500 GB (SSD)

### 3.2 SOFTWARE REQUIREMENTS

The application has been developed with the system having the following requirements:

* **Front-End Framework:** Angular 17, Ionic
* **Development Environment:** Visual Studio Code
* **Database Management:** Firestore
* **Hosting:** Firebase
* **Login Management:** Google OAuth

### 3.3 DOMAIN KNOWLEDGE

Food Bridge utilizes a combination of powerful technologies to achieve its goal of connecting food donors with recipients. Here's a closer look at each element:

**Ionic:**

Food Bridge leverages Ionic for its user interface (UI) development. Ionic is a popular framework for building hybrid mobile applications. It allows developers to create native-looking apps using web technologies like HTML, CSS, and JavaScript. This approach offers several advantages:

* **Cross-platform development:** With Ionic, a single codebase can be used to create apps for both Android and iOS, saving time and resources.
* **Native-like feel:** Ionic apps provide a smooth and responsive user experience that closely resembles native apps.
* **Rich UI components:** Ionic offers a comprehensive set of pre-built UI components that streamline the development process.

**Angular:**

The project utilizes Angular to handle the application's logic and functionality. Angular is a powerful JavaScript framework well-suited for building complex single-page web applications (SPAs). Here's how Angular contributes to Food Bridge:

* **Structured development:** Angular enforces a well-defined architecture, making the code maintainable and scalable as the application grows.
* **Data binding:** Angular's two-way data binding simplifies the process of keeping the UI and application logic in sync.
* **Reusable components:** Similar to Ionic, Angular promotes component-based development, allowing for code reuse and faster development cycles.

**Firebase:**

Food Bridge employs Firebase, a suite of tools and services from Google, to build the backend functionality of the Android application. Here's what Firebase offers:

* **Backend as a Service (BaaS):** Firebase provides pre-built backend functionalities such as authentication, database management, and cloud storage, eliminating the need for developers to set up and manage their own servers.
* **Real-time features:** Firebase offers real-time capabilities, which are crucial for Food Bridge's core functionality. Real-time notifications ensure that orphanages are promptly alerted about available surplus food.

**Firestore:**

Within Firebase, Food Bridge utilizes Firestore, a flexible and scalable cloud NoSQL database. Firestore allows for storing and managing the application's data, including details about hotels, orphanages, surplus food items, and user information. Firestore offers several benefits for Food Bridge:

* **Scalability:** Firestore automatically scales to accommodate the application's growing needs.
* **Offline support:** Firestore enables offline data access, ensuring smooth operation even if internet connectivity is limited.
* **Real-time updates:** Firestore integrates seamlessly with Firebase's real-time features, enabling instant updates for both donors and recipients.

**Google OAuth:**

Food Bridge implements Google OAuth, an authentication service developed by Google, to manage user logins. Google OAuth streamlines the login process by allowing users to sign in with their existing Google accounts. This offers several advantages:

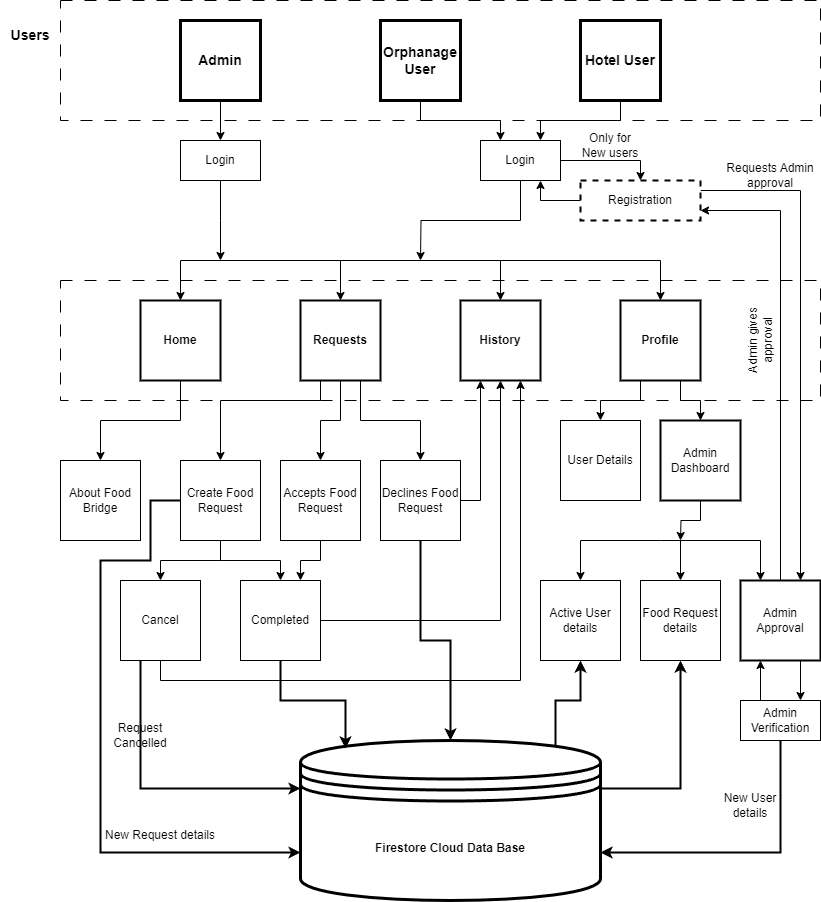
* **Simplified registration:** Users don't need to create separate accounts for Food Bridge, reducing friction and encouraging participation.
* **Enhanced security:** Google OAuth leverages Google's robust security infrastructure, ensuring user data is protected.
* **Scalability:** Google OAuth can handle a large number of users efficiently.

By combining these technologies, Food Bridge creates a robust and user-friendly platform that tackles the issues of food waste and hunger effectively.

# CHAPTER 4

## SYSTEM DESIGN

**4.1 SYSTEM ARCHITECTURE:**

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**4.2 MODEL OVERVIEW:**

**4.2.1 Users**

**Admin user:**

* Admin user is responsible for verifying and approving new user requests.
* Should be able to view open and closed requests.
* Admin can be able to access other user’s data and Food request details.
* But Admin won’t be able to update any data.

**Orphanage User:**

* Orphanage user is responsible for creating food requests in the application.
* Only orphanage user can be able to create, accept, Close or Cancel the request.

**Hotel User:**

* Hotel user is responsible for providing food for the requests by accepting it.
* They can also decline the request when not having enough foods.

**4.2.2 Login**

* Appropriate Hotel/Orphanage member, who received access from Admin can access the Application.
* By using their registered email ID, they can be able to login into the application.
* When new users are login to the application, after Admin verification they can access the application.

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**4.2.3 User Registration**

* Hotel/Orphanage member are required to fill the respected details and requests for Admin approval.

**4.2.4 Admin Dashboard**

**Admin Verification:**

* Admin should be responsible for doing background verification on the appropriate organization and decides Approve or Reject.
* Admin verifies all the received requests and provide them an appropriate Login access only for valid requests.
* Admin rejects the received access requests with invalid details.

**Request and Active user details:**

* Admin can be able to view active user’s details in the dashboard.
* And can be able to view the request details like Completed, Cancelled and Closed requests count.

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**4.2.5 User Profile**

* For Admin user their basic details added. Admin will have Admin Dashboard option for Admin Verification process and to view Active user’s details and request details.
* Logged user (Admin/Hotel/Orphanage) details will be prepopulated in the User Profile.
* They can be able to update location, address and contact details whenever possible.
* But Organization name, GSD no or registration no cannot be updated.

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**4.2.6 Home Page:**

About Food bridge and points.

A group of food items on a table

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**4.2.7 Food Requests:**

* Orphanage member can raise Food request from Requests page by just giving food count.
* Raised Food request is sent to all nearby Hotels based on location.
* Orphanage member could Cancel the request if they wanted to.

**4.2.8 Accept Requests:**

* Hotel user can Accepts the Request by providing available food count.
* Once request is accepted, then their contacts are shared to each other.
* When Hotel accepts food less than the requested count, other Hotel users can be able to accept it by providing remaining food.
* Fully Accepted requests should not be acceptable by other Hotel users.
* By contacting each other, Food can be delivered successfully as per their preference.

**4.2.9 Decline Requests:**

* If the Hotel is not having enough food for the request, they can Decline the request.
* Food request can still be viewed by other nearby hotels.

**4.2.10 Requests Completed:**

* When requested food is delivered, then that request is marked as Completed.
* When request is Declined by a Hotel, that request is marked Closed for that particular Hotel only.

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**4.2.11 History:**

* Once a Food request is completed that request is moved to History for the requested Orphanage user and accepted hotel users.
* Completed, Cancelled and Closed requests are moved to History page.
* By clicking Delete button, user can delete the Requests in History page.

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# CHAPTER 5

## IMPLEMENTATION

5.1 TECHNOLOGIES USED

# CHAPTER 6

## RESULTS AND DISCUSSION

# CHAPTER 7

## CONCLUSION

Food Bridge presents a promising solution to simultaneously address food waste and hunger. By connecting those with surplus food to those in need, the project contributes to a more sustainable and equitable food system. This innovative approach has the potential to create a positive ripple effect, promoting environmental responsibility, enhancing food security, and fostering stronger communities.

### PROJECT ACHIEVEMENT

**Reduced Food Waste:**

* **Diverting tons of edible food from landfills:** Food Bridge aims to significantly decrease the amount of food discarded by hotels. This translates to less food waste entering landfills, reducing methane emissions and environmental impact.

**Enhanced Food Security:**

* **Improved access to nutritious meals:** Orphanages and other authorized recipients will gain a reliable source of food, improving their access to healthy and nutritious meals. This can positively impact the overall well-being of individuals, especially children, by promoting proper physical and mental development.

**Fostering Community Connections:**

* **Collaboration and social responsibility:** Food Bridge creates a platform for collaboration between hotels (donors) and orphanages (recipients). Hotels contribute by donating surplus food, demonstrating social responsibility. This fosters a stronger sense of community by encouraging businesses to give back.

**Additional Potential Achievements:**

* **Increased awareness of food waste:** The project can raise public awareness about the issue of food waste and its environmental and social consequences.
* **Improved logistics and efficiency:** Food Bridge's real-time notification system streamlines communication and coordination, ensuring timely collection of surplus food before spoilage.
* **Potential expansion of the program:** The project could potentially expand its reach in the future to include other establishments with surplus food and a wider range of recipient organizations.

**Measuring Success:**

The success of Food Bridge can be measured through various metrics:

* **Quantity of food redistributed:** This reflects the project's effectiveness in diverting food waste.
* **Number of active users:** This indicates the project's reach and user engagement.
* **Positive feedback:** Feedback from both donors and recipients can provide valuable insights into the project's impact and potential areas for improvement.

By achieving these goals, Food Bridge has the potential to create a significant positive impact on food waste reduction, food security within vulnerable communities, and fostering a more collaborative and responsible community.

### CHALLENGES FACED

### OVERCOMING CHALLENGES

### FUTURE WORK

* **Network Expansion:** We envision a world where Food Bridge connects even more communities. We'll be actively expanding our network to encompass a wider range of locations, ensuring our platform reaches those who need it most.
* **Enhanced Services:** We're dedicated to providing a robust suite of services to our growing network. This includes the introduction of features like:
  + **Monetary Donations:** Empowering individuals to directly contribute financially to the fight against hunger.
  + **Individual Food Donations:** Providing a platform for anyone with surplus food to seamlessly donate to those in need.
* **Raising Awareness:** Food Bridge understands the importance of public education. We plan to organize impactful awareness programs and activities focused on food waste reduction and food security. These initiatives will target both local communities and children, fostering a culture of responsibility and sustainability.
* **Streamlined User Experience:** We're constantly striving to improve user experience. User-friendly request notification and tracking methods are on the horizon, ensuring smooth communication and efficient food retrieval.