

A PROJECT REPORT

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BONAFIDE CERTIFICATE

Certified that this Thesis titled **“WEB PLATFORM FOR FOOD DONATION AND ASSISTANCE USING IR ALGORITHM”** is the bonafide work of **“SURYAA KS (2116210701273), SYED JAVITH R (2116210701278), JAGATHRATCHAHAN V (2116210701701)”** who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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ABSTRACT

Proposed project introduces a web application designed to empower communities to tackle food scarcity through efficient food sharing practices. By leveraging user authentication via Gmail, the platform ensures a secure and personalized experience for users, directing them to a dynamic home page upon login, where they can easily contribute surplus food or request assistance. Donors can submit detailed information about their donations, which are securely stored, while a real-time notification system based on geolocation facilitates prompt matching between surplus donations and nearby food aid requests, fostering direct and effective connections between donors and recipients. Simultaneously, individuals in need can submit requests for food assistance, which are seamlessly matched with available donations in close proximity. Integration with a delivery app streamlines logistics, ensuring timely delivery to those in need. Overall, this platform aims to promote community involvement in combating food scarcity by providing a user-friendly interface, fostering unity, and offering a comprehensive solution for humane and efficient food redistribution. . The app easily connects with a volunteer to improve the delivery process, simplifying and guaranteeing that food is sent on time. The project's objective is of a community where extra food is freely distributed to those in need, encouraging a helpful and long-lasting solution to the problems associated with food scarcity.

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CHAPTER 1

INTRODUCTION

The web application presented in the proposed project is a sophisticated tool engineered to combat food scarcity by facilitating efficient and effective food sharing practices within communities. Through the integration of user authentication via Gmail, the platform emphasizes security and personalization, offering users a tailored experience that commences with a dynamic home page upon login. This interface grants users the capacity to either contribute excess food or request aid, fostering a collaborative environment geared towards alleviating food scarcity. Donors are empowered to provide comprehensive details about their donations, ensuring that this information is stored securely within the platform. This robust system is further enhanced by a real-time notification mechanism that leverages geolocation data to prompt swift matches between surplus donations and nearby food aid requests. By establishing direct and efficient connections between donors and recipients, the platform streamlines the process of redistribution, thereby amplifying its impact. Concurrently, individuals experiencing food insecurity can submit requests for assistance, which are seamlessly paired with available donations in close proximity. This seamless matching process optimizes the redistribution workflow, increasing the likelihood of timely and relevant assistance reaching those in need. The incorporation of a delivery app into the platform's infrastructure further enhances operational efficiency by ensuring the swift and accurate delivery of food items to their intended recipients. Built on Modern technology, this platform is designed to promote community engagement in the fight against food scarcity by providing a user-friendly interface that encourages participation and collaboration. By fostering a sense of unity and cohesion within communities, the proposed project offers a comprehensive solution for human and efficient food redistribution

1.1 PROBLEM STATEMENT

How might we innovate to address urban excess food waste, hunger-related deaths, and create a logistic network with innovative technology and cost-effective storage solutions? This is to efficiently transfer surplus food from cities to areas in deficit

1.2 SCOPE OF THE WORK

The scope of work for the proposed project entails the development, implementation, and maintenance of a web application focused on empowering communities to combat food scarcity through efficient food sharing practices. This involves integrating user authentication for secure access, creating a dynamic home page for users to contribute surplus food or request assistance, managing detailed donation information securely, implementing a real-time geolocation-based notification system for prompt matching, developing user-friendly interface, fostering community involvement and unity, and offering a comprehensive solution for humane and efficient food redistribution.

1.3 AIM AND OBJECTIVES OF THE PROJECT

The aim of the proposed project is to promote community engagement and collaboration in addressing food scarcity by developing a web application that facilitates efficient food sharing practices. Through secure user authentication and personalized user experiences, the platform seeks to streamline the process of connecting donors with surplus food to recipients in need through real-time geolocation-based matching, ultimately fostering direct and effective connections and providing a comprehensive solution for humane and timely food redistribution.

To address food scarcity effectively, the objectives of the proposed project
Develop a web-based platform to efficiently redistribute surplus urban food to deficit

areas, integrating innovative logistics, cost-effective storage solutions, and real-time data analytics to minimize food waste and reduce hunger-related deaths.

1.4 RESOURCES

The proposed project has been developed through widespread secondary research of standard papers, and conference reviews. Significant resources are required to achieve the aim of the proposed project. The following resources that will play a primary role in the successful execution of our project are: A properly functioning workstation (PC, laptop, net-books etc.), Unlimited internet access.

1.5 MOTIVATION

The motivation behind the proposed project stems from the pressing issue of food scarcity prevalent in numerous communities worldwide. Addressing this challenge requires innovative solutions that not only focus on the availability of food resources but also on the efficiency of their distribution. By empowering communities through a user-friendly web application, the project aims to harness the collective power of individuals to combat food scarcity in a direct and impactful manner. The platform's emphasis on secure user authentication and personalized experiences not only instills trust but also encourages active participation, fostering a sense of unity and collaboration among users.

Moreover, the project seeks to leverage advanced technologies like real-time geolocation and development to revolutionize the way surplus food is matched with those in need. The integration of a delivery app further streamlines logistical processes, ensuring that food items reach recipients promptly. By providing a comprehensive solution that combines efficiency with humanity, the proposed project aims to inspire community involvement and establish a sustainable framework for ongoing food redistribution efforts.

CHAPTER 2

LITERATURE SURVEY

Food Waste Management: Solving the Wicked Problem” by Elina Närvänen [1]. The proposed project deals about comprehensive framework for addressing the multifaceted challenge of reducing food waste. It explores environmental, economic, social, and ethical aspects related to food waste, emphasizing the need for collaborative efforts across sectors to find sustainable solutions. The authors propose a framework that addresses food surplus, food loss, and food waste. They emphasize that food waste is a wicked problem, characterized by its complexity and interconnectedness.

Food Loss and Food Waste: Causes and Solutions” by Michael Blakeney [2] This paper published by Edward Elgar Publishing in 2019, tackles the critical global issue of food loss and waste (FLW). Blakeney provides a comprehensive view of FLW, spanning from production to consumption. The book contributes to our understanding of this challenge by addressing definitional, institutional, and analytical aspects. It surveys a vast body of literature, covering topics such as measurement, regulatory approaches, and policy frameworks. While the writing is succinct and clear, the book primarily serves as a reference work rather than an advocacy piece for change.

Food Safety Management: A Practical Guide for the Food Industry” by V. Andersen, H. L. M. Lelieveld, and Y. Motarjemi: [3] Published by Academic Press in 2023, this practical guide focuses on food safety management. It provides insights for professionals in the food industry, emphasizing effective strategies to ensure safe food production, handling, and distribution. It covers all types of risks, including microbial, chemical, and physical hazards associated with each step of the food chain. A generic Hazard Analysis and Critical Control Points (HACCP) study is included, providing practical guidance for risk assessment and mitigation.

Food Safety Management: A Practical Guide for the Food Industry by Andersen, Lelieveld, and Motarjemi [4] provides an integrated approach to managing food safety across the production chain. It addresses various risks associated with each sector, from microbial to chemical and physical hazards, and offers practical examples and insights into avoiding pitfalls in food safety management. The book serves as a valuable resource for food safety managers, covering topics like HACCP studies and FSMA compliance, and emphasizing the importance of sustainability and ethics in the food industry

Methods for Estimating Greenhouse Gas Emissions from Food Systems by Flammini, Adzmir, Karl, and Tubiello [5], outlines the process for estimating greenhouse gas emissions across various components of agri-food systems. It provides a framework for mapping these components, assessing emissions, and understanding the environmental impacts of pre- and post-production activities. This work is crucial for informing countries about their agri-food systems' environmental effects and exploring options for reduction

"Uber Eats Food Delivery: Learning the Basics by Stonehem's [6] " provides an insightful peek into the emergence of Uber Eats, a pioneering force in the on-demand food delivery landscape. Through meticulous exploration, the book delves into the genesis of Uber Eats, chronicling its innovative approach to reshaping how people order and enjoy food. It unravels the operational framework behind Uber Eats, shedding light on its strategic deployment in select U.S. cities, where it initially began its culinary conquest.

"Food Delivery Restaurant: How to Start and Manage Your Business in Hospitality Industry by Yakkin's" [7] serves as an indispensable roadmap for budding entrepreneurs venturing into the realm of food delivery and restaurant management. With a meticulous focus on essential facets such as production, logistics, and marketing, the book lays a solid foundation for success in a fiercely competitive industry. It equips readers with practical tools to navigate the evolving landscape of the hospitality sector. Emphasizing the paramount importance of customer satisfaction and adaptation to digital advancements

"E-health Dietary Interventions for Participants of SNAP and WIC: [8] A Systematic Review by Crespo-Bellido, Fernandez Ong, Yaroch, and Byker Shanks" represents a seminal contribution to the field of public health, offering a comprehensive evaluation of e-health interventions targeting vulnerable populations. Through meticulous synthesis of existing research, the review underscores the transformative potential of digital platforms in addressing nutritional disparities among SNAP and WIC participants. By illuminating pathways to healthier lifestyle choices, this study advocates for the utilization of innovative technologies to bridge gaps in nutrition education and dietary habits, thereby fostering improved health outcomes within underserved communities.

"The Impact of Green Credit on Environmental Quality: [9] Empirical Evidence from China by Wu, Zhou, and Chen" stands as a pioneering exploration of the intersection between financial policies and environmental sustainability. Through rigorous empirical analysis, the study unveils the profound effects of green credit initiatives on China's ecological landscape, heralding a paradigm shift towards greener technology and industrial practices. By highlighting the multifaceted challenges in addressing environmental degradation, it underscores the indispensable role of green finance in driving innovation and fostering sustainable development.

"Strategies in Online Food Delivery Ecosystems by Armanious" [10] offers a penetrating examination of the intricate dynamics shaping the burgeoning online food delivery landscape. By dissecting the competitive strategies employed within diverse market ecosystems, the book provides invaluable insights into the evolving tactics of platform-based enterprises. Through meticulous analysis, it elucidates the strategic imperatives driving the success of online food delivery platforms, serving as an indispensable resource for stakeholders navigating this complex terrain. As digital innovations continue to reshape consumer preferences and market dynamics, this work serves as a beacon guiding businesses towards sustainable growth and competitive advantage.

"Green Finance and High-Pollution Corporate Compensation - Empirical Evidence from Green Credit Guidelines by Li, Lin, and Xiao" [11] delves into the transformative impact of environmental policies on corporate structures and compensation frameworks. Through empirical analysis, the study unveils the intricate interplay between green credit guidelines and wage disparities within high-pollution companies. By advocating for equitable compensation structures and corporate social responsibility, this research underscores the pivotal role of financial incentives in promoting environmental stewardship. As corporations navigate the transition towards sustainable practices, this study offers valuable insights into the socioeconomic implications of green finance initiatives.

"From Food Scarcity to Surplus: Innovations in Indian, Chinese and Israeli Agriculture by Gulati, Zhou, Huang, Tal, and Juneja" [12] provides a sweeping narrative of agricultural innovation across diverse cultural and geographical landscapes. Through a comprehensive examination of technological advancements and policy reforms, the book elucidates the transformative impact of agricultural innovation on economic growth and food security. By showcasing successful strategies employed in India, China, and Israel, this work offers invaluable lessons for policymakers and practitioners seeking to enhance agricultural sustainability and productivity

"Food Shortage Crisis: Origins and Global Impact by Drake [13] " offers a panoramic exploration of the historical, socioeconomic, and geopolitical dimensions of global food shortages. Through meticulous analysis, the book unravels the intricate web of factors contributing to food scarcity, offering insights into potential solutions and future prospects for addressing this pressing global challenge. By advocating for a holistic approach encompassing policy reforms, technological innovations, and international cooperation, this work underscores the imperative of collective action in ensuring food security for future generations.

"One Page in the History of Starvation and Refeeding by Hemstreet and Weisz [14] " offers a poignant reflection on the humanitarian dimensions of food scarcity and nutritional crises. Through historical analysis, the work sheds light on the medical and ethical complexities surrounding starvation and refeeding, offering insights into the enduring challenges of food insecurity. Published in the esteemed Rambam Maimonides Medical Journal, this article contributes to a broader understanding of the physiological and psychological impacts of famine, underscoring the imperative for effective humanitarian responses.

"FAO's Methodology for Damage and Loss Assessment in Agriculture [15] " presents a crucial framework for evaluating the impact of disasters and crises on agricultural sectors. By offering a systematic approach to assessing damage and loss, the FAO methodology enables policymakers and practitioners to devise effective recovery and resilience strategies. As agricultural systems face increasing vulnerability to climate change and other hazards, this methodology serves as a vital tool in safeguarding food security and livelihoods for millions of people worldwide. Moreover, it facilitates targeted interventions and resource allocation, ensuring that the most affected communities receive timely and adequate support.

"Is There Any Way to Increase Consumers [16]' Purchase Intention Regarding Surplus Food Blind-Boxes? An Exploratory Study by Sun and colleagues" delves into consumer behavior towards surplus food blind-boxes, shedding light on innovative strategies to reduce food waste. Through an exploration of factors influencing purchase intentions, the study contributes to the ongoing discourse on sustainable consumption practices. By highlighting the potential of creative marketing approaches, this research offers actionable insights for businesses and policymakers striving to address food surplus challenges while promoting environmentally conscious consumer behavior. Additionally, it underscores the importance of consumer education and awareness in enhancing the appeal and acceptance of surplus food products.

"Waste Not, Want Not: Value Chain Stakeholder Attitudes to Surplus Dairy Calf Management in Australia by Bolton [17], Vandresen, and von Keyserlingk" investigates stakeholder attitudes towards managing surplus dairy calves, emphasizing ethical considerations and sustainability in the dairy industry. Through a nuanced analysis of value chain dynamics, the study offers valuable insights for policymakers and industry stakeholders seeking to address ethical dilemmas while enhancing efficiency and sustainability in dairy production.

"Initial Assessment of the Efficacy of Food Recovery Policies [18] in US States for Increasing Food Donations and Reducing Waste by Aitken and colleagues" evaluates the effectiveness of food recovery policies in the United States, focusing on their impact on increasing food donations and reducing waste. Through empirical analysis, the study provides actionable insights into policy measures that can effectively mitigate food shortages and surpluses, fostering a more sustainable and equitable food system.

"The Fight Against Food Shortages and Surpluses: Perspectives of a Practitioner by McClintock [19] " offers a practitioner's perspective on combating food shortages and surpluses, drawing on diverse experiences and strategies. By distilling practical insights and lessons learned, the book serves as a valuable resource for practitioners and policymakers engaged in the ongoing battle for food security and sustainability. As communities worldwide confront the challenges of food insecurity, this work provides invaluable guidance for those on the front lines of addressing these pressing issues.

The study by Palimaru et al [20]. focuses on food recovery and produce distribution as strategic systems to enhance access to nutritious food for those facing food insecurity. Utilizing data from an intercept survey of 428 adults at five distribution sites and 15 interviews with site personnel, the research identifies both facilitators, such as community partnerships, and challenges, like limited refrigerated storage. The intervention proved crucial in underserved communities of Los Angeles County, especially during the COVID-19 pandemic. The authors advocate for increased local government coordination and investment in food recovery infrastructure to sustain and expand the program's reach.

CHAPTER 3

SYSTEM DESIGN

3.1 GENERAL

In this section, we would like to show how the general outline of how all the components end up working when organized and arranged together. It is further represented in the form of a flow chart below.

3.2 SYSTEM ARCHITECTURE DIAGRAM

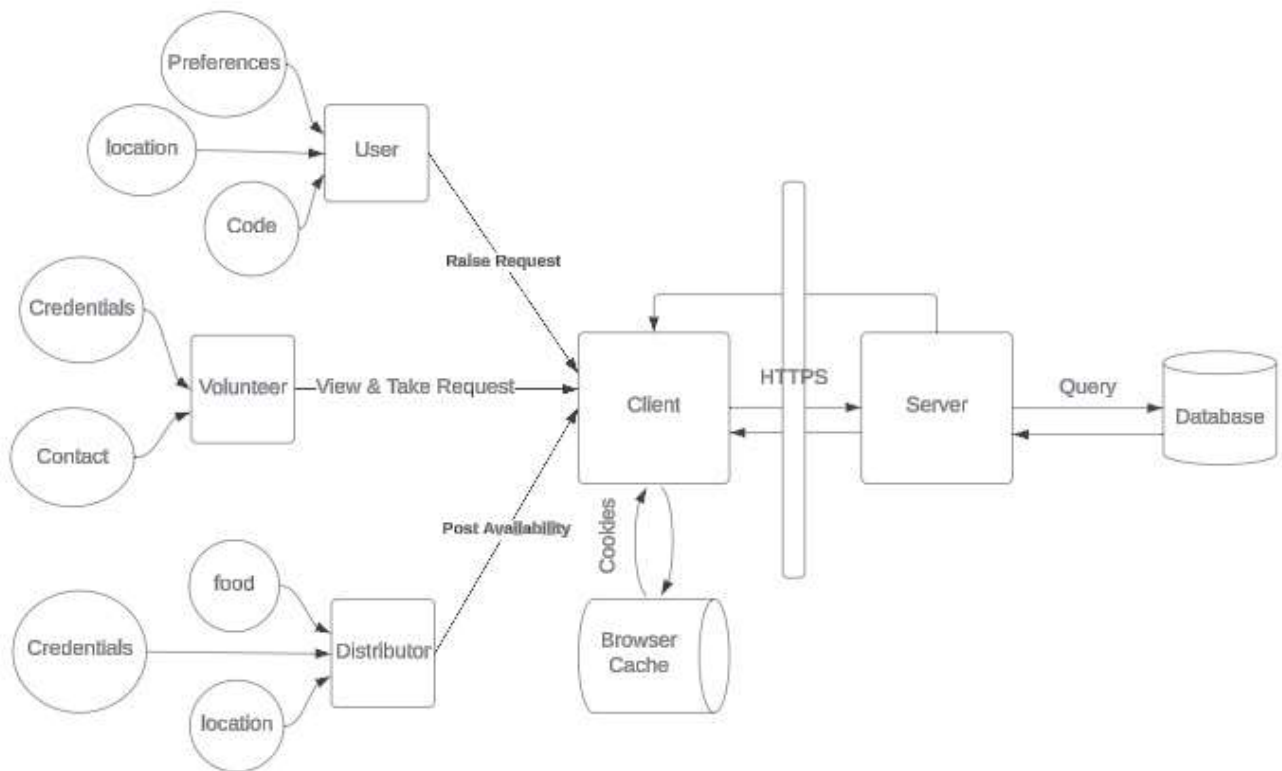


Fig 3.1: System Architecture

3.3 DEVELOPMENTAL ENVIRONMENT

3.3.1 HARDWARE REQUIREMENTS

The hardware requirements may serve as the basis for a contract for the system's implementation. It should therefore be a complete and consistent specification of the entire system. It is generally used by software engineers as the starting point for the system design.

Table 3.1 Hardware Requirements

COMPONENTS	SPECIFICATION
PROCESSOR	Intel Core i5
RAM	8 GB RAM
MONITOR	15" COLOR
HARD DISK	256 GB
PROCESSOR SPEED	MINIMUM 1.1 GHz

3.3.2 SOFTWARE REQUIREMENTS

Software requirements for the project include MongoDB (with tools like MongoDB Compass or Robo 3T), Mongoose, Express.js (with Node.js and npm), AngularJS or Angular (with Angular CLI and TypeScript), IDE

CHAPTER 4

PROJECT DESCRIPTION

4.1 METHODOLOGY

The methodology for the proposed project is structured to ensure the effective development and implementation of the web application aimed at combating food scarcity through efficient food sharing practices within communities. The initial phase involves a comprehensive requirement analysis to determine the specific needs and objectives outlined in the project's scope. This stage focuses on defining key functionalities such as user authentication via Gmail, dynamic home page features, donation management systems, real-time notification mechanisms, geolocation-based matching algorithms, and integration with a delivery app to streamline logistics.

Subsequently, the project progresses to the design phase, where wireframes and mockups are created to visualize the user interface, user flow is outlined, database schema for secure donation information storage is developed, and system architecture planning is conducted to support real-time notifications and geolocation-based matching. The development phase follows, entailing the construction of the web application using modern technologies with a particular emphasis on Modern Web-based platform to ensure an intuitive and responsive interface. Then testing is carried out to identify and rectify any bugs, errors, or usability issues before deployment, to guarantee smooth functionality and security across various platforms and scenarios. Post-deployment, continual monitoring, maintenance, and user feedback incorporation will ensure the platform's stability and effectiveness in addressing food scarcity and promoting community engagement.

4.2 MODULE DESCRIPTION

4.2.1 User Authentication:

Gmail is used to implement user authentication. By allowing users to sign in with their Gmail accounts, the system leverages OAuth 2.0 for secure and seamless authentication. This integration ensures that user credentials are handled securely without storing passwords on the platform. Role-based authorization is implemented to restrict access to specific features based on the user's role (user, volunteer, distributor).

4.2.2 Food Sharing:

The food sharing module provides an intuitive interface where users can dynamically choose to contribute surplus food or request food based on their needs. Users can enter detailed information about the food items they want to contribute, including type, quantity. Similarly, users in need can specify the type of food they are requesting and any dietary restrictions they may have. The interface is designed to be user-friendly, ensuring that both contributions and requests can be made quickly and easily.

4.2.3 Raise Food Request:

Users who are in need of food can raise requests through a straightforward process. They can detail their specific needs, such as the type of food required, quantity, and preferred delivery time. Once a request is made, it is listed in the system for volunteers to view. Users receive notifications when a volunteer accepts their request, providing them with real-time updates. This module ensures that the process of requesting food is accessible and efficient.

4.2.4 Recommendation System:

The recommendation system employs an algorithm designed to enhance user

engagement and resource allocation. It tracks user activity and preferences to notify regular contributors about relevant food requests and contributions first. The algorithm considers factors such as past contribution history, location, and the type of food usually contributed or requested, creating a personalized and efficient notification system.

4.2.5Transport of Food:

Volunteers can view a list of food requests and choose which ones to fulfill based on their availability and location. Once a volunteer accepts a request, they are responsible for picking up the food from the distributor and delivering it to the user. The system provides all necessary details, including pickup and delivery addresses, contact information, and any special instructions. This module ensures a streamlined process for food transport, making it easy for volunteers to participate and contribute effectively.

4.2.6Secret Code Generation:

Upon a volunteer accepting a delivery task, the system generates a unique secret code which is sent to the user in need of food. This code serves as a verification mechanism; the user provides the code to the volunteer upon receiving the food, which the volunteer then enters into the system to confirm delivery. If a volunteer fails to deliver the food, the code helps in tracking and managing the issue. This feature ensures accountability and provides a reliable way to confirm successful food deliveries.

4.2.7Analytics and Monitoring:

User profiles are maintained to monitor each individual's activity and contribution on the platform. The system compiles comprehensive data on food contributions, user engagement, and delivery metrics. This information is used to generate reports and insights, helping administrators understand platform usage patterns and identify areas for improvement.

CHAPTER 5

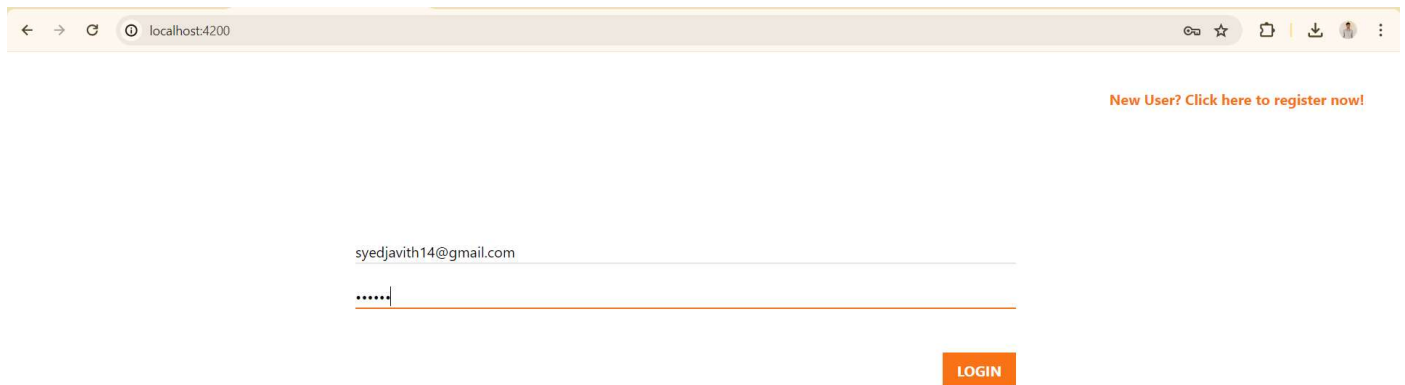
RESULTS AND DISCUSSIONS

5.1 OUTPUT

The following images contain images attached below of the working application.

Login Page:

The login page for this application provides a secure and user-friendly interface for users to access their accounts, featuring fields for email and password entry along with options for account recovery and new user registration.



The screenshot shows a web browser window with the address bar displaying 'localhost:4200'. The page has a light beige background. In the top right corner, there is a link that says 'New User? Click here to register now!'. Below this, there are two input fields: the first is for an email address, containing 'syedjavith14@gmail.com', and the second is for a password, represented by dots. To the right of the password field is an orange 'LOGIN' button.


Fig 5.1: Login page

Getting Food Info:

The food info page offers detailed information about available surplus food items, including descriptions, donation sources, helping users make informed choices about the food they receive or donate.


logout SYED JAVITH R
Distributor

ADD FOODVIEW REQUESTS




SYED JAVITH R
Dosa 5 , Biriyani 2
606203

[View Details](#)




Peri-Peri Pizza Corner
Pizza 13
606203

[View Details](#)




Suryaa
sambar rice,panner rice
600053

[View Details](#)



Harshitha Lunch Home
Idlis 20, Sambar 20
600002

[View Details](#)



Raju Foods

[View Details](#)

Fig 5.2 Food info

Detailed Info:

The Detailed food page gives further details of the specific food item.

HARSHITHA LUNCH HOME



Foods Available:
Idlis 20, Sambar 20

Location:
600002

Description:
The food is in good condition, we can provide you with good quality

[TAKE ORDER](#)

Fig 5.3 Detailed info

View Requests:

The view requests page displays a list of current food requests from various recipients, detailing the type of food needed, quantities, requested dates, and recipient locations, allowing donors to match their surplus efficiently to those in need.

REQUESTS

Request raised by: Syed User
Requester Contact Email: syedjavith13@gmail.com
Requester Mobile number: 6380411427
Requested Location: 600001
Requested Foods:
Plain bread 40

[Food details](#)

ORDER TAKEN

Request raised by: Subhiksha S
Requester Contact Email: subhiselvanayagam@gmail.com
Requester Mobile number: 9578337410
Requested Location: 631502
Requested Foods:
Dosa 5 , Biriyani 2

[Food details](#)

ORDER TAKEN

Request raised by: 273

Fig 5.4 View requests

5.2 RESULT

The result of the project is a functional web application that enables users to efficiently share surplus food and request assistance, thereby contributing to the alleviation of food scarcity within communities. Through features like secure user authentication, detailed donation management, real-time geolocation-based matching of donations and aid requests, seamless pairing of assistance requests with nearby donations, and integration with a delivery app for streamlined logistics, the platform simplifies the process of redistributing food resources. With a focus on user-friendliness and community engagement, this solution aims to foster direct connections between donors and recipients, enhancing the effectiveness of food redistribution efforts.

CHAPTER 6

CONCLUSION AND FUTURE ENHANCEMENT

6.1 CONCLUSION

In a world where food scarcity persists as a pressing concern, the proposed project emerges as a beacon of hope, embodying the essence of community solidarity and innovation. It symbolizes a collective effort to combat hunger by facilitating the seamless exchange of surplus food with those in need. Through its intuitive interface and real-time matching system, it bridges the gap between donors and recipients, transcending geographical boundaries and fostering a culture of mutual support. By streamlining logistics and emphasizing prompt delivery, it not only addresses immediate hunger but also cultivates a sense of empathy and interconnectedness within communities.

At its core, this initiative represents more than just a technological solution; it embodies a shared commitment to humanitarian values and social responsibility. By empowering individuals to make a tangible difference in the lives of others, it ignites a ripple effect of positive change, catalyzing a movement towards a more equitable and compassionate society. In doing so, it underscores the transformative potential of community-driven initiatives in addressing complex global challenges, offering a glimpse into a future where collaboration and empathy pave the way towards a world free from hunger and deprivation.

6.2 FUTURE ENHANCEMENT

One potential future enhancement for the proposed project could involve the implementation of advanced data analytics and machine learning algorithms. By analyzing donation patterns, recipient demographics, and geographical trends, the platform could gain insights to optimize its matching process and anticipate future needs more effectively. This would not only improve the efficiency of food

redistribution but also help in identifying areas with chronic food shortages, allowing for more proactive measures. Additionally, incorporating user feedback mechanisms could further refine the user experience and ensure that the platform continues to meet the evolving needs of its community. By collecting and analyzing feedback from both donors and recipients, the system could adapt to better serve its users and address any emerging issues promptly.

Expanding partnerships with local businesses, food producers, and governmental agencies could enhance the scope and impact of the platform, enabling it to access larger food surpluses and reach more individuals in need. Collaboration with these stakeholders could also lead to the development of innovative storage and transportation solutions, ensuring that surplus food remains fresh and safe during transit. Furthermore, integrating educational components, such as workshops and resources on sustainable consumption and waste reduction, could empower communities to make informed choices and support the project's goals more actively.

In addition to technological advancements and strategic partnerships, exploring funding opportunities through grants, sponsorships, and public-private partnerships could provide the necessary resources for scaling the project. This financial support could facilitate the deployment of new technologies, expansion into new regions, and enhancement of existing infrastructure. Overall, leveraging emerging technologies and forging strategic collaborations could propel the project towards greater efficiency, scalability, and long-term sustainability in its mission to combat food scarcity. By continuously evolving and adapting to new challenges, the platform can remain a vital resource in the global effort to reduce food waste and alleviate hunger.

APPENDIX

SOURCE CODE:

```
const express = require('express');

const Post = require('../models/post.model');

const authorize = require('../middlewares/auth.middleware');

const router = express.Router();

router.get('/food/:lat/:long' , async (req, res) => {

  const { lat , long } = req.params;

  console.log(parseFloat(long),lat);

  try {

    const foods = await Post.find({

      coordinates: {

        $near: {

          $geometry: {

            type: 'Point',

            coordinates: [parseFloat(long), parseFloat(lat)]

          },
```

```

    $maxDistance: 30000*1000

  }

  } , isBooked : false });

return res.status(200).send(foods)

} catch (error) {

  console.log(error);

  return res.status(500).send({

    message: "Internal server error"

  })

}

})

router.get('/food/:id', async (req, res) => {

  try {

    const {

      id

    } = req.params;

    const food = await Post.findOne({

      _id: id

    });

```

```

    return res.status(200).send(food)

  } catch (error) {

    console.log(error);

    return res.status(500).send({

      message: "Internal server error"

    })

  }

})

router.post('/food', async (req, res) => {

  try {

    const {

      description,

      location,

      image,

      distributor,

      foods,

      coordinates,

      distributorId

    } = req.body;

```

```

const newPost = new Post({
  description,
  location,
  image: image || "",
  distributor,
  isBooked: false,
  isDelivered: false,
  foods: foods,
  coordinates: {
    type: "Point",
    coordinates: [coordinates.long, coordinates.lat]
  },
  distributorId
})

await newPost.save()

res.status(200).send({
  message: "Added successful"
})

} catch (error) {

  console.log(error);

```

```

    return res.status(500).send({
      message: "Internal server error"
    })
  }
})

router.post('/food/code/:id', async (req, res) => {
  try {
    const {
      id
    } = req.params;

    const update = await Post.updateOne({
      _id: id
    }, {
      $set: {
        code: req.body.code,
        isBooked: true
      }
    })

    console.log(update);

    res.status(200).send({

```



```

        message: "code added successful"

    })

    } catch (error) {

        console.log(error);

        return res.status(500).send({

            message: "Internal server error"

        })

    }

})

router.post('/food/receive/:id', async (req, res) => {

    try {

        const {

            id

        } = req.params;

        const {

            code

        } = req.body

        const update = await Post.findOne({

            _id: id,

            code

```

```

    })

    if (update) {

        await Post.updateOne({

            _id: id

        }, {

            $set: {

                isDelivered: true

            }

        })

        res.status(200).send({

            message: "code added successful"

        })

    } else {

        res.status(400).send({

            message: "No such product"

        })

    }

} catch (error) {

    console.log(error);

    return res.status(500).send({

```

```

        message: "Internal server error"

    })

}

})

router.delete('/food/:id', async (req,res)=>{

    try {

        const { id } = req.params;

        console.log(id);

        const deletePost = await Post.deleteOne({ _id : id })

        console.log(deletePost);

        if(deletePost.deletedCount>0) return res.status(200).send({ message : "Deleted
successfully!" })

        return res.status(404).send({ message : "No such food available" })

    } catch (error) {

        console.log(error);

        return res.status(500).send({

            message: "Internal server error"})

    }

})module.exports = router

```

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