Annasampark: Smart Redistribution of Surplus Food via Online Platform

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Abstract: The Objective of this project is to provide Food wastage, unused educational resources such as books, and surplus clothing remain pressing issues across restaurants, institutions, and communities, where large quantities of these resources are often discarded or left idle instead of being redirected to those in need. This project objective is to provide a user-friendly web platform that makes it easier for connections between food providers, book givers, and clothing donors and community organizations, schools, shelters, and charities. The platform reduces waste, maximizes distribution, and guarantees that excess food, clothing, and books reach disadvantaged groups by automating the donation process. This lessens the impact on the environment, promotes social welfare, and fosters educational advancement.

Keywords: Food waste, Online platform, NGO, Sustainability, MERN stack, web application

I. INTRODUCTION

Food waste is a developing issue that has detrimental repercussions on society, the environment, and the economy. Large volumes of edible food are thrown out in restaurants, catering services, and other hospitality settings due to overpreparation, erratic consumer demand, and subpar management techniques. According to estimates, over one-third of the food produced worldwide is never eaten, which depletes natural resources and exacerbates pollution and climate-related problems. There is a glaring disparity between the amount of food available and the quantity of individuals in need of it, as a lot of people still struggle with hunger.

Many NGOs make an attempt to gather and repurpose leftover food, However, their efforts are occasionally hampered by poor communication, delayed updates, and inadequate donation tracking. A computerized infrastructure that connects food givers with groups that can utilize the excess is required to address this. This project suggests an online platform that food producers can use to promptly post leftover food that is offered to registered charity. This technique can lessen food waste, strengthen communities, and foster a more sustainable food-sharing network by enhancing real-time coordination.

II. LITERATURE SURVEY

A. Digital Platforms for Structured Food Redistribution

In order to decrease food waste and enhance food redistribution Recent studies have focused more and more on technology-driven platforms. Pranav Amrutkar et al. (2024) introduced ECOFEAST, a multi-module platform for food redistribution built with Flutter, Dart, and Firebase. The system segregates users into Admin, Donor, NGO, and Logistics modules, enabling real-time listing of surplus food, user verification, geolocation- based coordination, notifications, and feedback. By combining intuitive UI design with real-time data sync and logistics management, ECOFEAST demonstrates how an integrated digital ecosystem can reduce food waste and emissions while supporting food- insecure communities.

B. Evaluation of Commercial Food-Sharing Applications

Several studies have examined existing food- sharing platforms and their broader impact. Mengting Yu et al. (2024) evaluated the "Too Good To Go" (TGTG) app at a territorial level using high-frequency web-scraped data and machine-learning models (Random Forest). Their findings show that TGTG generates clear economic value for both businesses and consumers and effectively handles genuine surplus, but most users are driven by convenience rather than sustainability, indicating a need for stronger awareness and policy support. In another strand, Karnesh Sampath et al. (2023) reviewed global mobile applications such as OLIO, Unneighborly, and FareShare, highlighting core features like real-time data collection, food quality control, and last-mile delivery. They emphasize that well-designed mobile apps can both address logistical challenges and function as social enterprises through ad-based or partnership-driven revenue models.

C. Community-Based and Inclusive Food Redistribution Models

Other contributions focus on specific social structures and implementation models. Srinivasan Rajendran and D. Rajeswari (2024) proposed a web-based platform mediated by women's organizations, connecting donors (individuals, restaurants, and businesses) with recipients. The platform incorporates multilingual support, geo-location, safety protocols, and machine-learning–based matching, with survey feedback indicating high usability, effectiveness, and positive community impact. Similarly, Ebin J. George et al. (2023) developed FoodShare, a collaborative mobile application built using Flutter with XAMPP/MySQL backend, featuring GPS tracking, notification alerts, delivery route monitoring, and role-based dashboards for donors, volunteers, and recipients. Their results point to increased donation activity, improved logistics, and enhanced community engagement.

D. Summary of Research Gaps

Overall, the literature shows a clear trend towards real-time, data-driven, and user- centric platforms for surplus food redistribution, using mobile and web technologies, geolocation, and in some cases machine learning. However, existing works also reveal gaps, such as limited integration of strong sustainability motivations on the user side, context-specific constraints (e.g., urban areas in developing regions), and the need for more transparent, scalable coordination among diverse stakeholders. These gaps justify further research into smarter, more inclusive platforms that combine real-time coordination, data analytics, and community-oriented design to enhance both environmental and social outcomes.

III. PROBLEM STATEMENT

In restaurants, festivals, and institutions, food waste is a rising problem where extra food is frequently thrown away rather than being used to assist those in need. Surplus is currently dispersed inefficiently by hand.. A user- friendly web platform that links food suppliers and charitable organizations is necessary to guarantee appropriate distribution and minimize the food waste.

IV. OBJECTIVES

- Provide a user-friendly online platform that allows food organizations and businesses to promptly submit information about excess food that is available for redistribution.
- Use instant notification tools to let charities and NGOs know as soon as a gift is listed.
- Maintain food quality and include safety regulations with features like expiration alerts.
- Utilize data analysis to research donation patterns, pinpoint times of peak surplus, and assist stakeholders in making wise choices.
- Minimize the quantity of food that is dumped in landfills and cut down on emissions from food waste to promote environmental sustainability.

V. METHODOLOGY

The objective of the AnnSampark platform is to ensure that surplus resources are continuously redistributed through a systematic digital process. Donors that register on the platform include houses, restaurants, organizations, and event planners. They provide details about the products that are provided, such as their type, quantity, and window of availability. These lists are available to all verified NGOs, shelters, and community organizations, and donations are welcome at any time regardless of how far away they are By arranging for collection or delivery after a gift is accepted, the process simplifies logistics and reduces manual labour. The platform also collects feedback from donors and recipients to enhance accountability and transparency, and it employs real- time notifications to inform stakeholders on the status of gifts.

A. Listing and Verification of Donations Restaurants, organizations, homes, and event planners are among the donors who register on the platform and submit excess commodities in addition to details regarding their, amount, availability, and expiration date. To guarantee accuracy and adherence to safety regulations, the system verifies these inputs.

B. Acceptance and Access for All Donations can be viewed and accepted at any time by any registered NGOs, shelters, and community organizations. This guarantees ongoing redistribution without limitations depending on manual coordination or proximity.

C. Logistics and Scheduling The website arranges pickup or delivery times between the donors and recipients after a donation is approved.

D. Comments and Reporting Both donors and recipients offer comments following a successful delivery. This data is recorded by the system in order to enhance accountability, transparency, and future redistribution cycles.
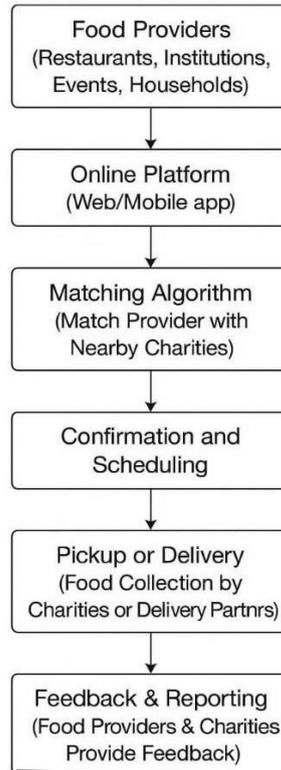

FIG. 1 FLOWCHART OF MODEL

VI.   IMPLEMENTATION

The AnnSampark platform was developed using the MERN stack (MongoDB, Express.js, React.js, Node.js) to ensure scalability and efficiency. The system integrates multiple modules—user authentication, donation management, location services, NGO coordination, and administrative monitoring— into a single web application.

Authentication: Secure login and registration are handled with JWT tokens to protect user sessions.
Role-based dashboards: Donors, NGOs, and Admins each have tailored interfaces to perform their respective tasks.
Admin monitoring: Administrators verify NGOs, oversee system activity, and generate analytical reports for performance evaluation.

This modular design allows independent development of each component while maintaining seamless communication through REST APIs, making the platform reliable, secure, and easy to maintain.

A. Algorithms / Pseudocode

A. **User Registration**

- Input: name, email, mobile number, Validate all fields.
- If email already exists → show error.
- Else → hash password, store record in database, return success message.

B. User Login

- Input: email and password.
- Retrieve user record.

- If not found → return "Invalid email."
- Else compare entered password with stored hash.
- If match → generate JWT token and return success.
- Else → return "Incorrect password."

C. Adding a Donation

- Donor selects type (Food/Clothes/Books).
- Enter item details and validate.

D. Viewing Donations

- NGO requests list of active donations.
- Sort results by nearest location using Haversine formula.

E. Accepting a Donation

- NGO selects donation.
- Check if status = "Available."
- If yes → update status to "Accepted"
- Else → return "Not Available."

VIII. RESULTS

The AnnSampark platform's results demonstrate that every major feature functions properly and seamlessly. Donors could upload food, books, and clothing with ease, and users had no trouble registering and logging in. Based on their location, NGOs might view these gifts and get recommendations. Donors and recipients could monitor the donation process because to the system's effective handling of pickup scheduling and status updates. Reports regarding donation activities were viewable by admin users, and feedback was appropriately preserved. All things considered, the platform worked effectively during testing, was user-friendly, and shown dependability for practical application.
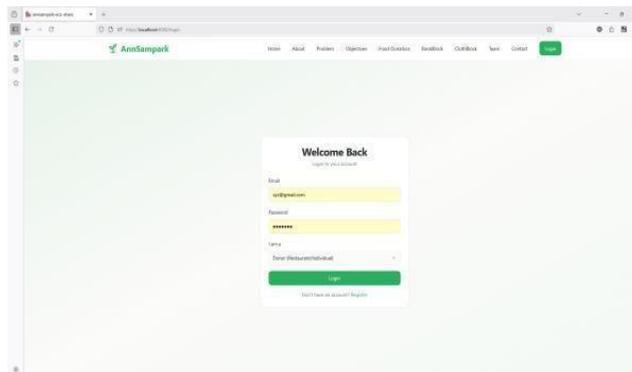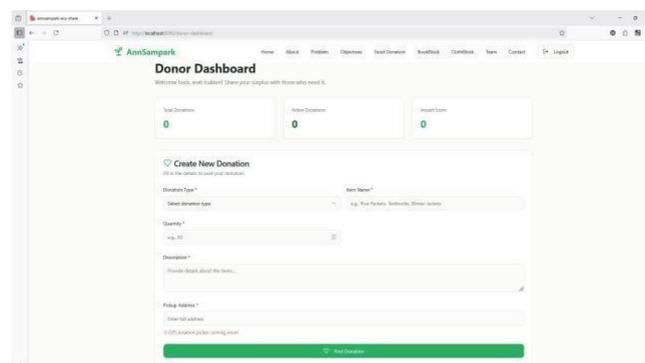

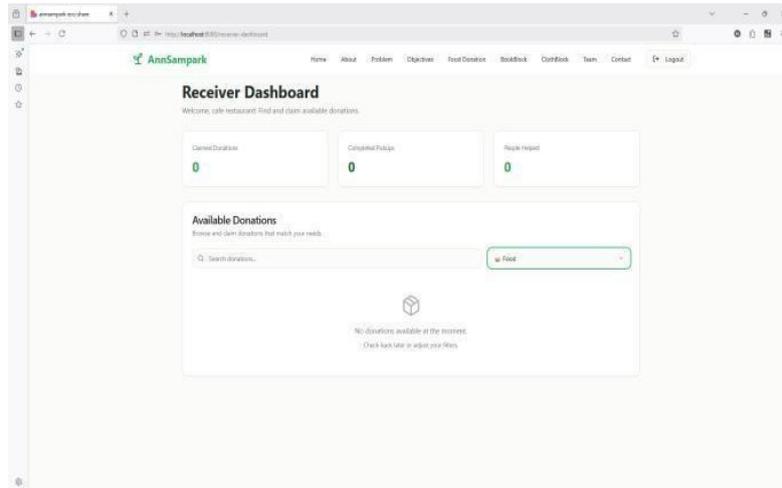Fig. 1 Login Page

FIG. 2 Donor Dashboard
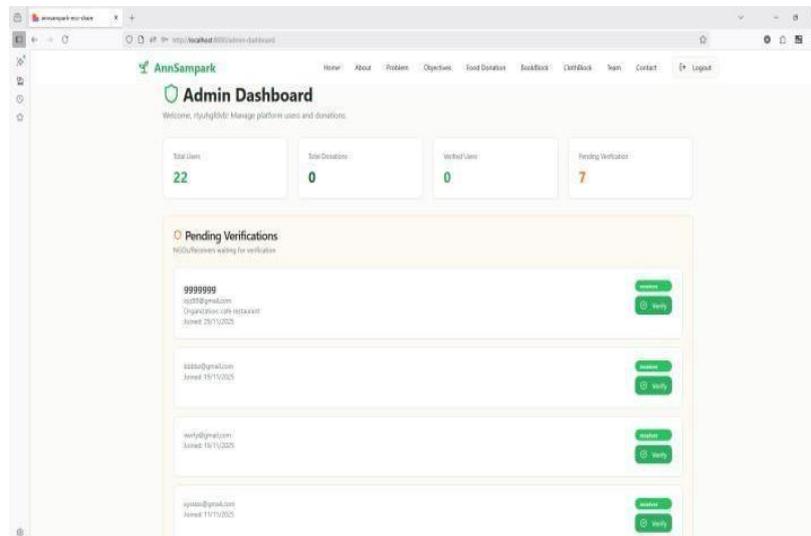
FIG. 3 Receiver Dashboard

FIG. 4. admin Dashboard

IX. CONCLUSION

In order to reduce waste and encourage zero- waste living, AnnSampark's Eco-Share Platform is a sustainable full-stack solution that links donors and recipients for the clever redistribution of excess food, books, and clothing. The platform guarantees accountability, efficiency, and transparency throughout the donation lifecycle with its role-based dashboards, GPS-enabled discovery, and impact measurements. It provides scalability, dependability, and user-friendliness and is built on a cutting-edge stack of technologies that comprises React, Vite, Node.js/Express, and MongoDB. It is also secured with JWT authentication, Cloud nary integration, and middleware safeguards. AnnSampark embraces the vision of fusing technology with compassion to promote cooperation, empower communities, and create a future that is inclusive, impactful, and waste-free. This vision is supported by standardized APIs, clear deployment pathways, and rigorous testing.

FUTURE WORK

- AI-Powered Matching: Integrate machine learning to intelligently match donors with receivers based on location, urgency, and category of surplus.

- IoT Integration: Track logistics, keep an eye on food freshness, and check storage conditions in real time with smart sensors.

- Blockchain Transparency: Use blockchain technology to guarantee safe, unchangeable donation records, boosting accountability and confidence.

- Scalable Expansion: Increase the platform's coverage of more categories (such as electronics, stationary And medication) and broden its geographic reach to accommodate international redistribution networks.

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