AidShare: Cloud Powered Aid Exchange Platform

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Abstract: AidShare: Cloud Powered Aid Exchange Platform is a well-thought-out platform that effectively leverages technology to facilitate food donations and streamline the process for all involved parties. The clear division of user roles and specific functionalities tailored to each role ensure a smooth experience for admins, donors, and agents.

This platform uses technologies like HTML, CSS, Bootstrap, JavaScript, Node.js, Express.js, and MongoDB indicates a robust tech stack that enables the platform to deliver a seamless user experience while ensuring scalability and efficiency in managing donation records and user profiles. With crucial features like account management, authentication (signup/login/logout), and customized dashboards for every kind of user, the platform guarantees user engagement and functionality.

By incorporating features such as account management, authentication, and personalized dashboards, AidShare enhances user engagement and provides a user-friendly interface for interacting with the platform. The emphasis on transparency and accountability in all user interactions is commendable, as it fosters trust and a community-driven approach towards addressing food insecurity.

Overall, AidShare appears to be a valuable platform that not only facilitates food donations but also promotes a sense of community involvement and social responsibility in addressing food insecurity issues.

Keywords: User Authentication, Admin, Donor, Agent, Donations, Web Application, MongoDB, Node.js, Dashboard

I. INTRODUCTION

In a time of swift technical progress and heightened social responsibility consciousness, the need for effective and transparent platforms for charity distribution has grown. In order to address these demands, the AidShare project is a trailblazing endeavor that seeks to transform the administration and distribution of food donations via an advanced cloud-powered platform.

AidShare works by linking three distinct user roles - Admins, Donors, and Agents - all crucial to the aid exchange system. Admins have full control, managing donation requests, approving submissions, and assigning Agents to collect donations. They track all activities through user-friendly dashboards, ensuring efficient collaboration and quick response to new needs.

Donors are the program's main force, as they use the AidShare portal to directly seek donations. They are able to provide important details about the food supplies they would like to give, as well as track the progress of their contributions in real time. Through personalized dashboards, donors oversee their past and current donations, update their information, and actively participate in the aid-sharing process.

Admins delegate tasks and communicate with agents, who are responsible for physically collecting food donations. They make sure donations are picked up from donors' homes promptly and efficiently by promptly updating collection statuses. With specialized dashboard features, agents can also monitor their past collections, aiding them in effectively organizing their logistical operations.

II. LITERATURE REVIEW

1. Cavicchi, A., and M. Caraher (2014). "Old plates for a new crisis, or old crises on new plates? Food insecurity and food banks." 1440–1452, British Food Journal, 116(9).[1]

In their 2014 study, Caraher and Cavicchi explore how food banks might help alleviate food poverty. The research critically investigates whether food banks, a solution to food insecurity, are an old problem being reused for new problems or a new answer to an old problem.

Historical Context: By linking the inception of food banks to the economic crises of the 1980s, the study offers a historical perspective on their formation. It demonstrates how food banks have changed to meet

the needs of people from different socioeconomic backgrounds.

Food Insecurity: The authors stress that food banks are not a cure for food insecurity, but rather one of its symptoms. They contend that although food banks offer short-term assistance, they do not deal with the structural injustice and poverty that are the root causes of food insecurity.

Operational Challenges: The report lists a number of operational difficulties that food banks encounter, such as their reliance on contributions of excess food, which can result in variations in the food's nutritional content and quality.

Policy Implications: Caraher and Cavicchi contend that the emphasis of policy should be shifted from food banks to more long-term fixes that deal with the underlying causes of food insecurity. They support all-encompassing social programs that guarantee everyone has access to food.

Using a qualitative methodology, the study draws on interviews with beneficiaries, legislators, and food bank workers.

2. Bhatt, V., together with C. Bhatt (2015). "A study of the impact of food donation programs on urban food security." 10(4), 521–533, Journal of Hunger & Environmental Nutrition.[2]

The effect of food donation programs on urban food security is examined by Bhatt and Bhatt (2015). The goal of the study is to comprehend how these initiatives help to lessen urban food insecurity and how well they are able to reach people that are at risk.

Impact on Food Security: According to the study, food donation initiatives greatly increase urban people' access to food. These initiatives give low-income families and individuals access to necessary food supplies that they may not otherwise have.

Community engagement: Bhatt and Bhatt emphasize how crucial community engagement is to the accomplishment of food donation initiatives. They discover that community-based programs are more successful in reaching and helping the underprivileged.

Nutritional Value: The writers stress how crucial it is to guarantee the nutritive value of the food supplied via donation programs. They point out that although many initiatives concentrate on quantity, attention is increasingly needed to the nutritional value of donated food.

Using a mixed-methods approach, Bhatt and Bhatt combine program participants' quantitative surveys with program organizers' and volunteers' qualitative interviews. This technique makes it possible to fully comprehend the difficulties and effects of the programs.

The study offers insightful information about the beneficial effects of food donation initiatives on urban food security. To pinpoint best practices and potential areas for development, it may benefit from a comparative study of other food donation programs.

III. MULTI-USER FEATURES

The three types of individuals that comprise the system are administrators, donors, and agents. Admins: They select which agents to collaborate with, approve or disapprove donations, and keep an eye on everything. Donors: The main people that use the app to donate food are called donors. Agents: They are responsible for obtaining food from the homes of food donors. Each user should have an account. Every user also has a dashboard where they can view different items in short summaries. Features for registering, logging in, and logging out are available in the program.

A. Admin Features

1) All requests from donors are received by the admins.
2) The details provided by a donor determine whether an administrator approves or rejects a gift request.
3) If a donation is approved, administrators can designate an agent to pick it up from the donor's house.
4) Admins have the ability to view the status of all pending donations.
5) Administrators are able to see every donation they have ever received.
6) The application allows administrators to view every agent.
7) The profile of administrators can be updated.

B. Donor Features

1) Donors with little information submit requests 2. for food contributions.

2) Donors can easily follow the progress of their donation requests and see if they are approved or denied.
3) Donors can view gifts that they may have overlooked.
4) The donation history of a donor can also be viewed.
5) The profile of a donor can be modified.

C. Agent Features
1) Administrators will send agents to contributors' homes to take up food.
2) Agents have the choice to label the food they collect from the donor's house.
3) The food contributions that the agents have previously gathered are also accessible to them.
4) It is possible to make changes to an agent's profile.

IV. SYSTEM DESIGN ARCHITECTURE

The system design architecture is represented by a flowchart outlining the user journey and system functionalities:
1. Start: The user starts the system by sending a command.
2. User Registration: New users fill out a registration form with the system, including important details.
3. User Login: To access the system, registered users must log in.
4. User Type: Admin, Donor, or Agent are the three user types that the system recognizes.
5. Admin Dashboard: Admins oversee all system operations, such as allocating agents and accepting or rejecting donations.
6. Donor Dashboard: Contributors choose agents to pick up their food donations, manage their contributions, and make food donations.
7. Agent Dashboard: Agents oversee their activities related to collecting food from donors.
8. Logout: After completing their tasks, users have the option to log out of the system.
9. End: When a user session finishes, the system comes to an end.
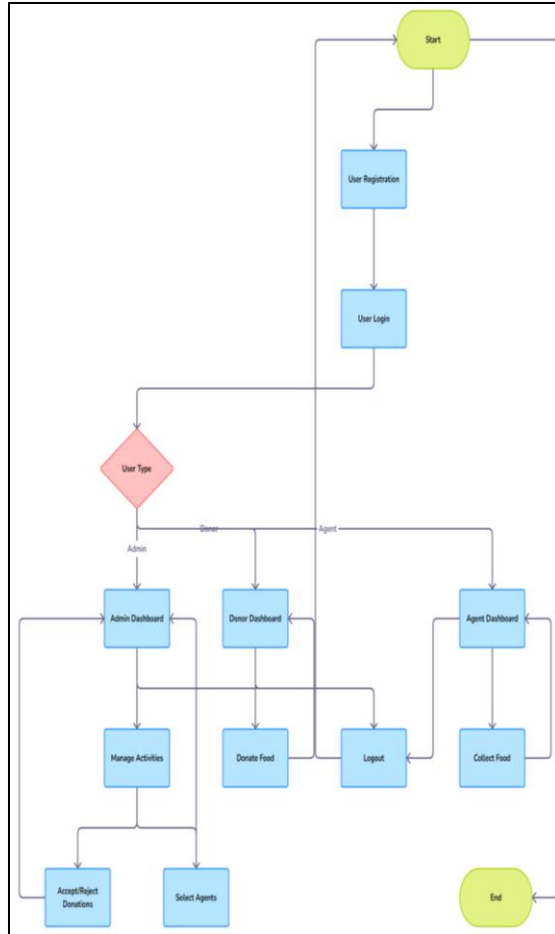
Fig.1: System Architecture

Agent, Donor, and Admin are some of the actors. Use examples that demonstrate how each actor interacts with the system to carry out particular tasks include Manage Donation Requests, Make Donation Request, and Mark Collection Complete.

The donation request processing workflow is represented visually in the activity diagram. A Donor submits a request and provides necessary information first. After the request is saved by the system and sent to the administrator, it is reviewed and either approved or denied. An agent is designated for collection if the offer is approved. After receiving a notification, the Agent gathers the donation, modifies the status, and notifies the Donor that the transaction is finished
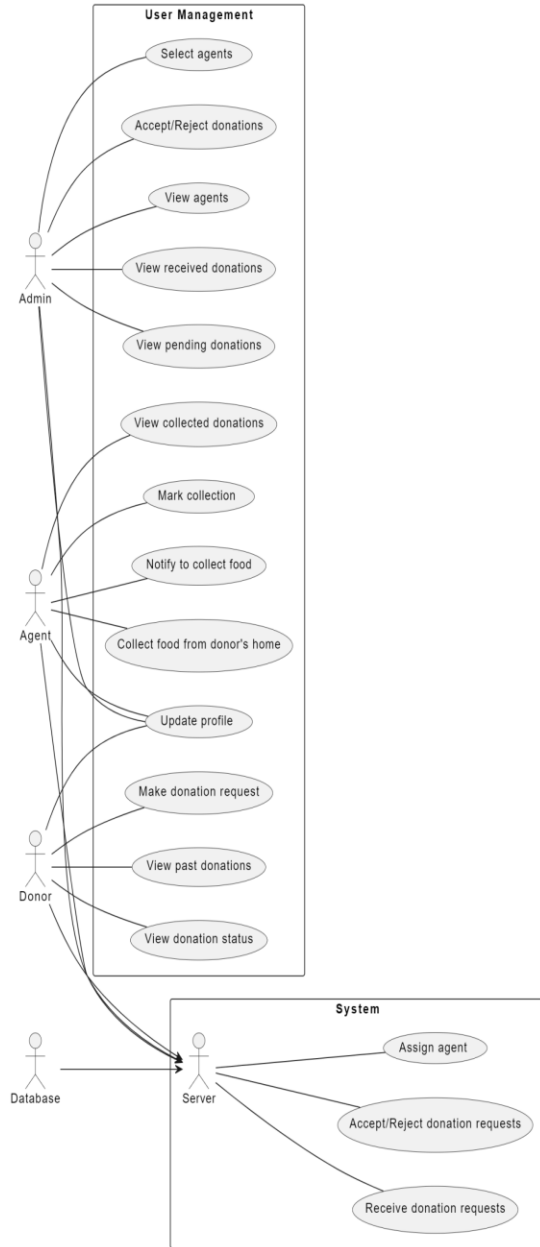
Fig.2: Use-case Diagram

Fig.3: Class Diagram

V. PREREQUISITES

The system's structure is depicted in the class diagram, which defines specialized classes like Admin, Donor, and Agent (which derive from User) and classes like User (with characteristics like userID, name, and role). There are defined methods for updating profiles, logging out, and logging in. Relationships show how the Admin controls DonationRequest instances, the Donors submit requests, and the Agents take care of the collecting.

For launching the application, you must have:
1) Node.js installed in the system.
2) As it is a Cloud-powered platform, you must create a cluster on MongoDB Atlas and deploy your MongoDB database.
3) Use VS Code as your Code Editor.
4) Create an environment variable, where you assign the MongoDB Atlas credentials as MONGO_URI.
5) As the system already contains npm packages, you just need to start the run the application using "npm start" command in your VS Code Terminal.
6) Open your browser(Chrome recommended), and browse using http://localhost:5000/
7) You need to Sign up then Login to run the application.

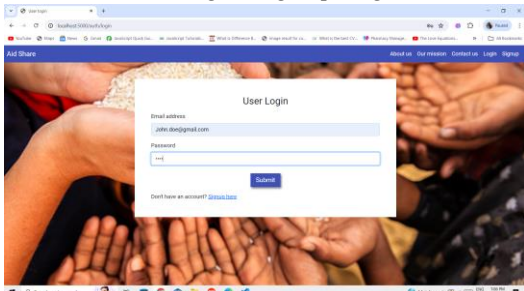VI. SCREENSHOTS
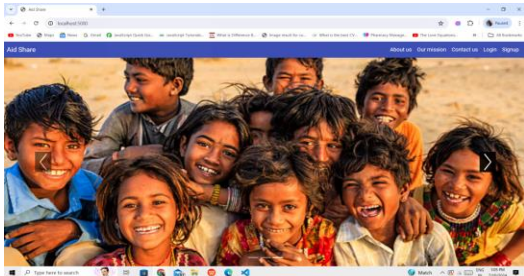
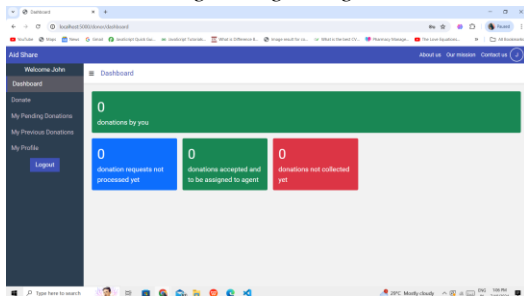*Fig.4: Home Page*
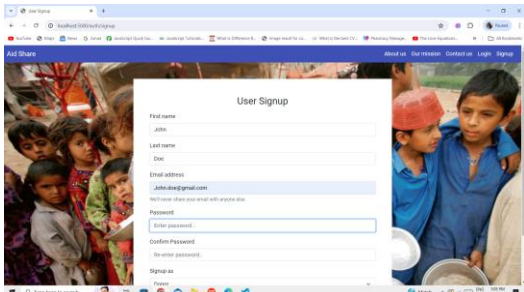
Fig.5: Sign up Page

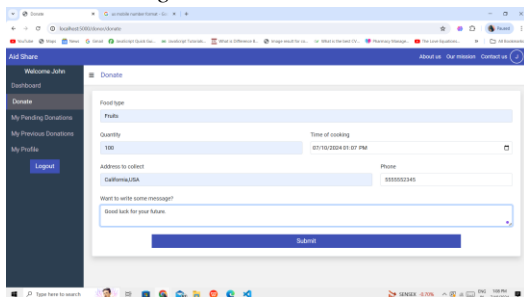*Fig.6: Login Page*

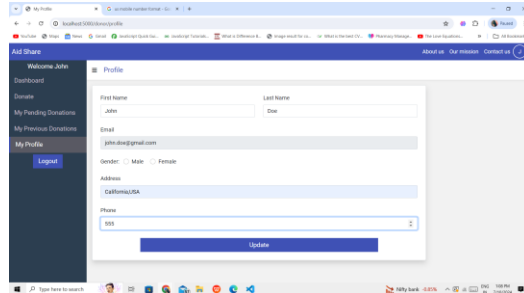*Fig.7: Donor Dashboard*
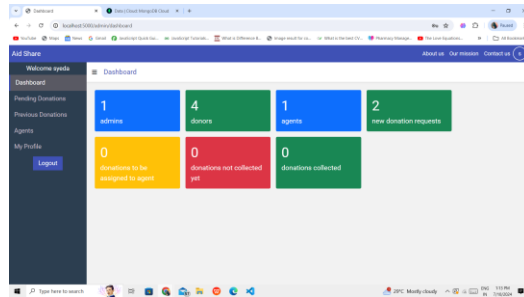

Fig.8: Donate Page
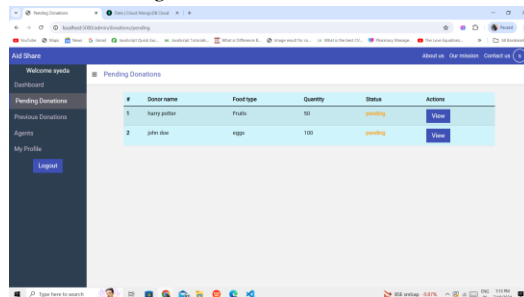

Fig.9: Donor Profile Details
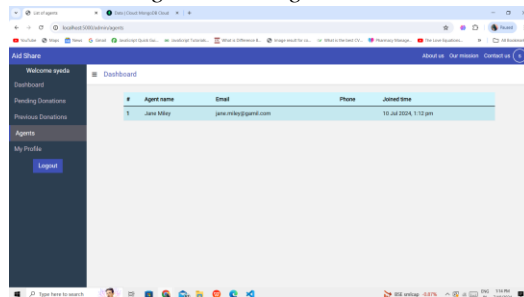

Fig.10: Admin Dashboard

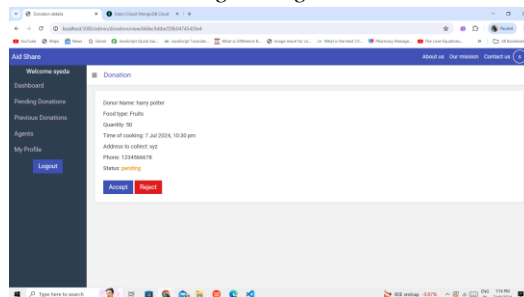*Fig.11: Pending donations*
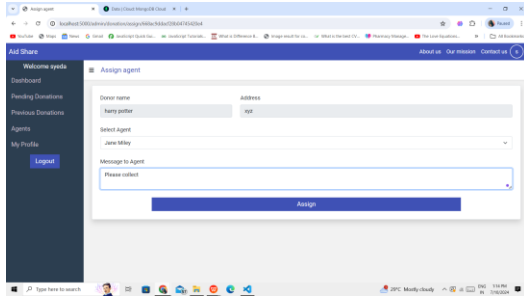

Fig.12: Agents

Fig.13: Donation Accept/Reject
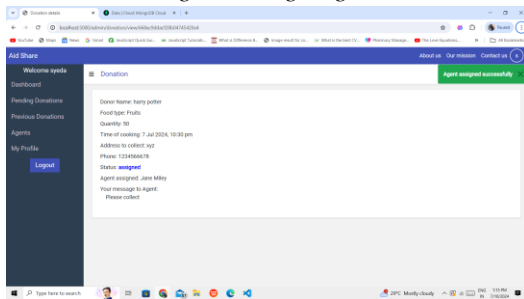
Fig.14: Assign Agent
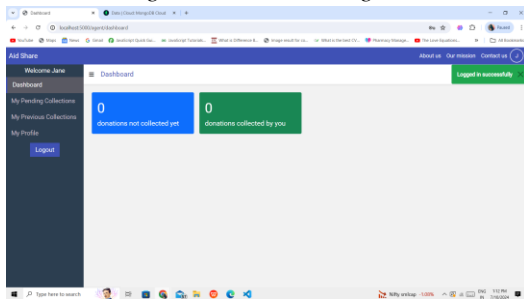

Fig.15: Donation Assigned
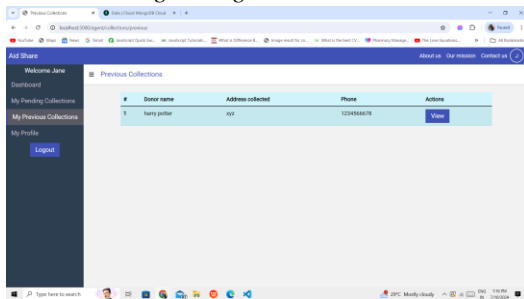

Fig.16: Agent Dashboard
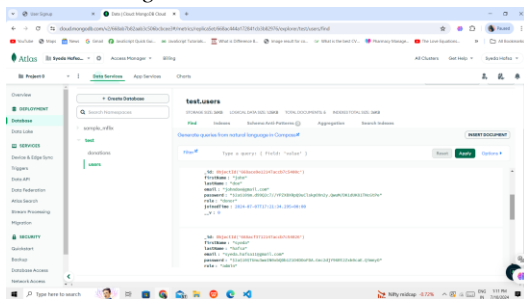

Fig.17: Previous Collection

Fig.18: MongoDB Atlas Database

VII. CONCLUSION

By optimizing the food donation, collection, and distribution process, the AidShare platform seeks to reduce food insecurity and increase efficiency and effectiveness in doing so. With distinct roles for admins, contributors, and agents, the system ensures that any user can easily do their responsibilities and contribute to the end goal. The features of the system, which include user dashboards, real-time tracking, and comprehensive profile management, promote accountability and transparency. This concept not only tackles the logistical challenges of food donation, but it also fosters community engagement and a giving culture. Because of its user-friendly interface and thorough testing, the system shows how technology can be utilized to advance social good and is anticipated to be a solid tool in the fight against hunger.

VIII. FUTURE ENHANCEMENT

There is room for substantial future improvements and developments to the food donation Aid Exchange platform. Using AI and advanced data analytics to predict food donation trends, optimize agent collecting routes, and reduce food waste is one of the main areas for development. By adding a mobile application to the system, users would find it easier to access and more convenient, allowing donors to make rapid donations and agents to handle collections more effectively.

Enhancing the system's functionality to incorporate collaborations with nearby supermarkets and eateries could increase the availability of food and decrease wastage. It would also be beneficial to include a feedback mechanism that allows beneficiaries of donations to offer suggestions for improving the caliber and variety of food collected.

Blockchain technology integration for tracking and guaranteeing the safety and authenticity of food donations is another possible improvement. This will improve the process' transparency and sense of confidence, facilitating communication across companies and enabling contributors to understand the results of their work.

IX. REFERNCE

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