Online Medicine Donation System

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***Abstract*— In India, a large number of people live in abject poverty. As a result, folks with modest incomes find it challenging to cover their medical expenses and prescription drugs. They consequently suffer from a variety of illnesses, which leads to an increase in the number of fatalities every day. In addition, many people continue to overdose on drugs even after they have stopped taking their prescription medicines. Here, we have established a webpage for NGOs to receive medication donations. Through this scheme, people can donate their leftover medications to non-governmental organizations, who would then distribute them to those in need. By better utilizing unwanted medications, this website will help lower the cost of healthcare services while also assisting the underprivileged in accessing better medical care. Additionally, this portal helps local non-governmental organizations determine whether necessary medications are available. This project aims to donate unused medications. Unused medications can be given to the underprivileged for future use. With the aid of this app, consumers can give unneeded medications to charitable organizations. In order to monitor members, administrators log in, remove, and block people who have submitted expired or inaccurate prescriptions. The uploaded image's expiration date must be verified by the administrator. NGOs assist with inventory control and medicine availability monitoring.**

Keywords— Drug distribution, websites, non-governmental organizations, and health services.

INTRODUCTION:

In the human race, life is a significant concern. Many people have experienced health issues recently. Health care is a vital aspect of living in developing nations. People in impoverished countries have restricted access to health care facilities since there aren't enough doctors and paramedical personnel. As a result, those countries have a high demand for healthcare.

One of the developing nations is India. India has established private sector organizations and activities related to public health and nutrition. Additionally, after the merger, access to health care in India is crucial:

1. India has a large population. By 2024, there will be approximately 1.44 billion people living in India. India has 428 persons per square kilometer.

2. According to the World Health Organization, there are approximately 1.34 physicians for every 1,000 Indian citizens (W.H.O.).

3. People's well-being and the nation's poverty are eradicated by poverty, which also develops public health concerns. Approximately 6.7% of India's total population is below the poverty line, which is defined as having a daily mean income of $2 USD.

Because the majority of those living below the poverty level in these competitions do not pay for health care. For the majority of them, it is the most crucial factor aside from the "drug dosage."

As a result, they suffer from a variety of illnesses, are unable to pay for quality medical care and medications, and many give their life as a result. Extremely poor people are able to purchase a wide variety of necessary medications and store them for later use.

Here, our goal was to develop a website that would assist in gathering unwanted medications from contributors and help those with low incomes or those unable to pay for quality medical care.

We also assist NGOs in keeping an eye on the supply of necessary medications.

Many people in the nation are underprivileged and unable to purchase expensive medications because of poverty, and many of them are also unable to use those medications as prescribed. According to the survey we created, 86.9% of respondents believe that there should be a reliable platform where they can donate their leftover or unused medications. They also believe that our portal is a reliable platform, and they are willing to donate their medications there in order to assist the underprivileged or needy. Based on these results, we can conclude that this was a key motivation for creating this website.

We have maintained an open survey as a discussion forum to find out why individuals do not want to obtain medications

from a reliable platform or website. Several respondents gave a variety of reasons, with the primary one being the validation of expiration dates or the trust element. Additionally, we have chosen to develop an algorithm for expiry date checking on the portal itself because people frequently have questions about when medications expire. Consequently, we are limiting the validity of medications' expiration dates.

LITERATURE REVIEW:

Due to its potential to improve healthcare accessibility and reduce medication waste, the idea of online drug donation platforms has attracted a lot of attention recently. Numerous studies have investigated various technological frameworks, approaches, and societal effects related to these systems.

A. Dealing with Accessibility and Medicine Waste:

Numerous studies highlight the necessity to disperse unused or almost expired medications to underprivileged populations and the growing problem of medication waste. The creation of online portals where users can give medications is discussed in research by Nagdeote et al. (2021) and More (2021). This reduces waste and guarantees that excess medication reaches people in need.

An NGO-mediated donation mechanism is crucial for guaranteeing equitable distribution and improving drug accessibility, particularly in impoverished areas of India, according to a related study by Raghav et al. (2022).

B. Frameworks and Applications of Technology:

Numerous scholars concentrate on the technological facets of medical donation systems. With session-based logins and HTTPS authentication, Singh et al. (2023) suggest a system based on MySQL, HTML, CSS, JavaScript, and PHP that guarantees safe transactions. To expedite the contribution procedure, Aggarwal (2023) presents a method with automated expiration date checking.

Additionally, in order to facilitate smooth donor-beneficiary interactions, Chunge et al. (2021) integrate Firebase databases and Java into an Android-based pharmaceutical donation app. These developments point to an increasing trend in cloud-integrated and mobile-friendly donation solutions.

C. Regulatory and Security Aspects:

In many studies, ensuring the legality and safety of medicine contributions is a major challenge. To stop expired or fake drugs from getting into the system, researchers talk about access control, authentication methods, and expiration date validation algorithms.

For example, to increase trust in online contribution portals, Kumar et al. (2022) use multi-tier verification and server-end security methods. Similarly, Gupta & Jain (2023) suggest incorporating AI-based monitoring to track the eligibility of recipients and the authenticity of medications.

D. Impact on Society and Upcoming Improvement:

Studies highlight these systems' wider societal impact in addition to their technological aspects. Babar et al. (2023) and Singhal et al. (2022) contend that by reducing expenses for those with low incomes, medicine donation platforms help achieve universal healthcare coverage. Future systems' transparency and tracking effectiveness could be further enhanced by the possible incorporation of blockchain technology and artificial intelligence.

METHODOLOGY:

A. System Overview

An online platform called the Online Medicine Donation System was created to make it easier for people to donate their unneeded medications. It links non-governmental organisations (NGOs) who provide these medications to impoverished populations with individual donations. The system keeps an organised inventory for effective distribution and guarantees accurate authentication of donated medications.

B. System Architecture

Three tiers make up the platform's architecture, which includes:

- Frontend: An easy-to-use web interface for administrators, NGOs, and donors. HTML, CSS, and JavaScript were used in its development.
- Backend: A server-side program built using Node.js or Python (Django) that handles donations, inventory, and authentication.
- Database: An organised repository that uses MySQL or MongoDB to store donor data, medication details, and NGO requests.

C. Functional Workflow

1. Authentication and User Registration:
   - Administrators, NGOs, and donors are among the users who safely register and log in.
   - Password encryption and an email verification mechanism are used to manage authentication.
2. Medicine Donation Process:
   - Donors provide a prescription photograph along with the medication's name and expiration date.

- Before submission, the system looks for any missing data.

3. Verification of Medicines:
   - The administrator examines medications that are submitted.
   - Prescription photos and expiration dates are verified to stop the donation of dangerous or out-of-date medications.
4. Management of Inventory:
   - The inventory is updated with approved medications.
   - NGOs can look through the medications that are available and request the supplies they need.
5. Distribution of Medicines:
   - An approval procedure is started as soon as an NGO submits a medication request.
   - A secure distribution method is used to transfer medications, and records are updated appropriately.
6. User Management and Monitoring:
   - For security and transparency, logs are kept, and administrators have authority over user behaviour, including the ability to ban accounts that offer misleading information.

RESULT AND DISCUSSION:

The Online Medicine Donation System was tested and put into use with success. The following results were noted:

1. **Authentication and User Registration:**
   Donors, NGOs, and administrators can successfully log in and authenticate.
   Email verification and hashed passwords are used for secure authentication.

2. **Drugs Contribution & Confirmation:**
   Details about medications, such as pictures and expiration dates, might be uploaded by users.
   Duplicate and expired medications were effectively screened out by the administrator panel.

3. **Processing Inventory and NGO Requests:**
   The availability of medications was tracked in real time by a structured database.
   NGOs could effectively submit requests and peruse the obtainable medications.

4. **Performance of the System:**
   The platform managed several users at once with little to no lag.
   Verification of medications takes three to five minutes on average for each gift.
   Response time for a search query: less than two seconds.

Discussion:

By enabling people to contribute unneeded medications, which are subsequently validated and dispersed by non-governmental organisations, the Online Medicine Donation System considerably lowers the amount of medicine waste. The method lowers healthcare expenses while improving impoverished areas' access to necessary medications. Nonetheless, difficulties were noted in confirming the legitimacy of medications and liaising with non-governmental organisations. Future enhancements might include a mobile application for improved user accessibility, blockchain integration for transparency, and AI-based medication expiration verification. Notwithstanding these difficulties, the platform shows promise as a means of reducing medication waste and enhancing access to healthcare.

CONCLUSION:

The Online Medicine Donation System ensures that necessary pharmaceuticals reach impoverished areas by offering an organised and effective platform for donating unneeded prescriptions to non-governmental organisations. The system lowers healthcare expenses and medical waste by making it easier to collect, verify, and distribute medications. The software efficiently handles user identification, medication inventory, and NGO requests with little delay, according to the implementation results.

The approach has shown great promise in enhancing medical accessibility, despite obstacles including confirming the legitimacy of medications and liaising with non-governmental organisations. Its functionality can be further optimised with future additions like blockchain for transparency, AI-based verification, and a mobile application. All things considered, this method is a worthwhile effort to close the gap between people in need and excess medications, fostering a more accessible and sustainable healthcare system.

FUTURE SCOPE:

Future improvements to the Online Medicine Donation System could greatly increase its effectiveness, security, and usability. The danger of human error can be decreased by automating the verification of medication expiration dates with the integration of AI-based picture recognition. Additionally, by guaranteeing safe medication tracking from donors to recipients, blockchain technology can improve transparency in the donation process. Creating a mobile application will increase user interaction even further and facilitate NGOs' and funders' access to the platform at any time. Additionally, by connecting contributors with local NGOs, geolocation-based matching can streamline logistics and lessen transportation-related issues. Partnership with healthcare authorities for appropriate pharmaceutical handling and safety standards can be formed to guarantee adherence to regulatory norms. These developments will not only enhance the system's performance but also produce a more significant and long-lasting solution for the distribution and donation of medications.

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