

# MEDONOR: An Inclusive Online Platform for Medical Equipment Donation

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**Abstract** — The efficient utilization of Medical Equipment remains a critical concern for providing high-quality healthcare, especially in regions with limited resources. However, the absence of a centralized platform has often posed challenges to the donation process, hindering potential donors' ability to connect with suitable organizations. This research paper presents "MEDONOR", an intuitively designed website aimed at streamlining the donation of medical equipment to non-governmental organizations (NGOs) and hospitals. "MEDONOR" seeks to tackle the pervasive issue of underutilized equipment by establishing a centralized platform where individuals can contribute surplus or unused medical equipment. The platform empowers equipment donors to catalogue their available items, while NGOs and hospitals can explore and request specific medical equipment that aligns with their needs. The user-centric design strategy, encompassing solicitation of user input and rigorous usability assessments, ensures the development of an intuitive and effective website interface that fosters seamless interaction and communication among all stakeholders. Furthermore, the platform incorporates measures for evaluating equipment condition, conducting maintenance, and adhering to safety protocols to ensure the reliability and safety of donated equipment.

**Keywords** — Me, Medical Equipment, Donor, MeDonor

## INTRODUCTION

Access to adequate medical equipment is essential for healthcare organizations to deliver quality services. However, many hospitals and NGOs face challenges in acquiring the necessary equipment due to financial constraints and limited resources. At the same time, numerous individuals and organizations have surplus or unused medical equipment that they are willing to donate. Unfortunately, the lack of a centralized platform often makes it difficult for donors to connect with

recipient organizations, leading to underutilization of valuable resources. To address this issue, we introduce MEDONOR, an innovative online platform designed to facilitate the seamless donation of medical equipment.

MEDONOR aims to bridge the gap between potential donors and recipient organizations by providing a user-friendly interface for listing available medical equipment and requesting specific items. By incorporating a user-centred design approach, MEDONOR ensures that the website interface is intuitive and efficient, enabling easy navigation and effective communication between donors, NGOs, and hospitals. User feedback and usability testing play a crucial role in continuously improving the platform's functionality and user experience.

In addition to enhancing the donation process, MEDONOR addresses ethical considerations associated with donated medical equipment. The platform incorporates strategies for assessing equipment condition, conducting maintenance, and adhering to safety guidelines to ensure the reliability and quality of the donated items. By providing a centralized platform for equipment donation, MEDONOR aims to optimize the utilization of surplus medical equipment, improving access to essential resources for underserved communities and contributing to the overall enhancement of healthcare services.

## METHODOLOGY/EXPERIMENTAL

**Import necessary modules:** Import the required modules such as express, path, bcrypt, mongoose, cookie-parser, express-session, and jsonwebtoken using ES6 import syntax.

**Create an instance of the Express application:** Create an instance of the Express application by calling the express() function and assign it to the variable app.

**Configure session middleware:** Use the express-session middleware to configure session handling. Set the cookie option to define the maximum age of the session cookie. Set the secret option to provide a secret key for session encryption. Set the save Uninitialized option to false to prevent saving uninitialized sessions.

**Configure middleware:** Set up middleware for various functionalities:

**Static file serving:** Use the express . static middleware to serve static files from the "public" directory.

**URL encoding:** Use the express. URL encoded middleware to parse URL-encoded data sent in the request body.

**Cookie parsing:** Use the cookie Parser middleware to parse cookies from incoming requests.

**JSON parsing:** Use the express. json middleware to parse JSON data sent in the request body.

**View engine setup:** Set the view engine to "ejs" using the app. set method.

**Connect to MongoDB:** Use Mongoose to connect to a MongoDB database with the specified URL. Handle the connection promise by logging a success message or catching any errors.

**Define the user schema and model:** Define a user schema using mongoose. Schema with fields for name, email, password, donor status, and products. Create a User model using the schema.

**Define authentication middleware:** Create a middleware function check Authentication that checks for a valid token in the request cookies. If no token is found, render the "login.ejs" view with a welcome message. Otherwise, store the token in the session and proceed to the next middleware.

**Set up route handlers:** Define route handlers for different routes and HTTP methods using the app.get and app.post methods. The routes include:

**"/" (root):** Render the "home.ejs" view if the user is authenticated.

**"/donate":** Render the "donate.ejs" view if the user is

authenticated, or render the "login.ejs" view with a login message if not.

**"/home":** Render the "home.ejs" view if the user is authenticated, or render the "login.ejs" view with a login message if not.

**"/about":** Render the "about.ejs" view if the user is authenticated, or render the "login.ejs" view with a login message if not.

**"/register":** Render the "register.ejs" view with a welcome message.

**"/login":** Render the "login.ejs" view with a welcome back message.

**"/users/all":** Retrieve all users from the database and send them as a JSON response.

**"/register" (POST):** Handle the user registration process. Hash the password using bcrypt, check if the user already exists, create a new user record in the database, generate a JWT token, set it as a cookie, and render the "home.ejs" view.

**"/login" (POST):** Handle the user login process. Find the user in the database, compare the provided password with the hashed password, generate a JWT token if the credentials are valid, set it as a cookie, and redirect to the "/home" route.

**"/logout" (POST):** Clear the token cookie

## RESULTS AND DISCUSSIONS

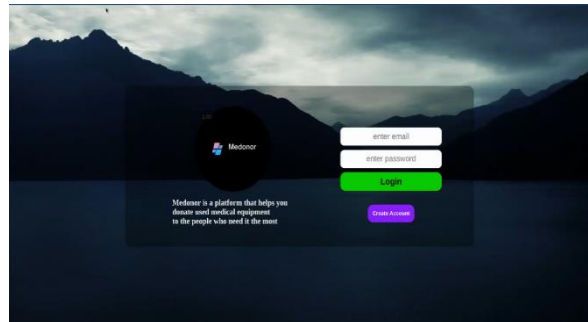


Image 1 :- Login Page

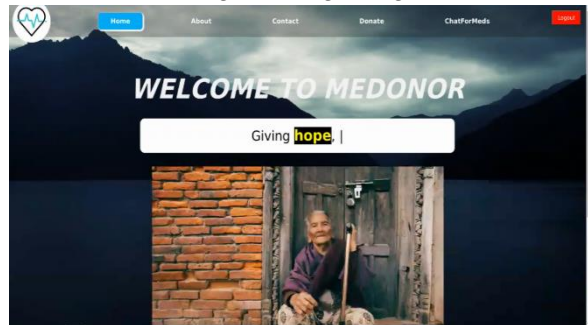


Image 2 :- Home Page

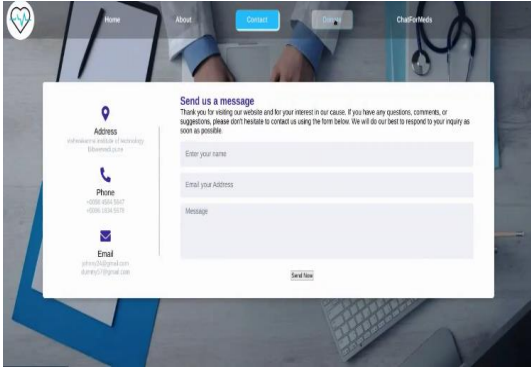


Image 3 :- Contact Page

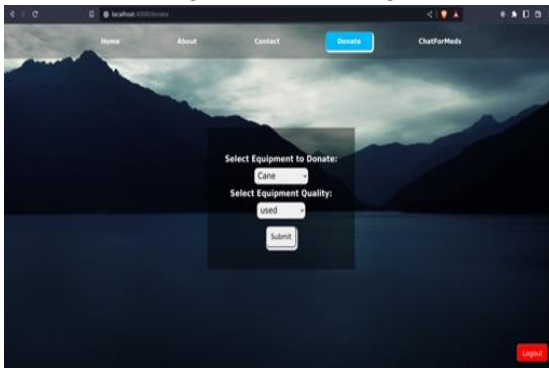


Image 4 :- Donate Page

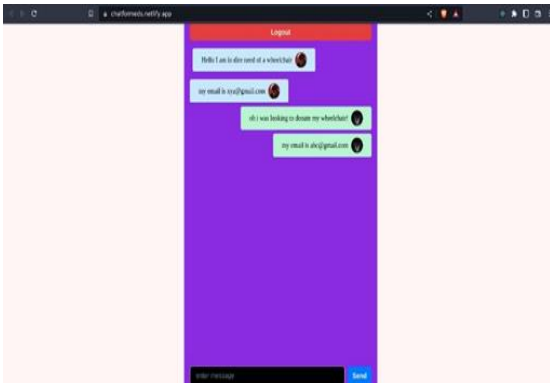


Image 5 :- ChatForMeds

### FUTURE SCOPE

- [1] MEDONOR, as a user-friendly online platform for medical equipment donation, holds immense potential for future development and expansion. Here are some key areas for future exploration and enhancement.
- [2] Geographic Expansion: Currently, MEDONOR focuses on facilitating medical equipment donation within a specific region or country. However, there is significant potential to expand its reach globally. By incorporating multi-lingual support, adapting the platform to different regulatory frameworks, and

establishing partnerships with international organizations, MEDONOR can extend its impact to underserved regions worldwide.

- [3] Integration with Telemedicine and Remote Healthcare: As telemedicine and remote healthcare services continue to grow, integrating MEDONOR with these platforms can enhance their effectiveness. By facilitating the donation of equipment needed for telemedicine consultations, such as remote monitoring devices or teleconferencing equipment, MEDONOR can support the expansion of telemedicine initiatives and improve healthcare access for remote areas.
- [4] Collaboration with Medical Equipment Manufacturers: Partnering with medical equipment manufacturers can open up opportunities for MEDONOR to receive direct donations from manufacturers' surplus inventory or discontinued models. This collaboration can ensure a steady supply of high-quality equipment for donation and strengthen the platform's impact in meeting healthcare organizations' specific needs.
- [5] Data Analytics and Resource Optimization: By leveraging data analytics, MEDONOR can gain insights into donation patterns, equipment utilization rates, and recipient organizations' requirements. This information can be used to optimize donation campaigns, identify areas with the highest demand, and ensure efficient allocation of resources, leading to improved matching of equipment donors with recipient organizations.
- [6] Enhanced Mobile Application: Developing a mobile application for MEDONOR can increase its accessibility and reach. A mobile app would enable users to easily donate equipment, search for available items, and connect with recipient organizations conveniently from their smartphones. Additionally, the app can provide push notifications and updates to keep users informed about relevant donation opportunities.
- [7] Partnerships with Healthcare Institutions and NGOs: Strengthening partnerships with healthcare institutions, NGOs, and charitable organizations can expand MEDONOR's network and increase its impact. By collaborating with these stakeholders, MEDONOR can reach a wider audience of potential donors and recipients, establish trust, and further streamline the donation process.

## CONCLUSION

In conclusion, MEDONOR has immense potential to revolutionize the process of equipment donation and improve healthcare accessibility. By providing a centralized and easily accessible platform, MEDONOR bridges the gap between equipment donors and recipient organizations. The platform's user-centric design approach ensures an intuitive interface, facilitating seamless interaction and communication. Moreover, by addressing ethical considerations and incorporating robust mechanisms for equipment assessment and maintenance, MEDONOR ensures the reliability and suitability of donated items. With its future scope in geographic expansion, integration with telemedicine, partnerships, data analytics, mobile application development, and collaboration with manufacturers, MEDONOR has the capacity to significantly impact the healthcare sector, optimize resource utilization, and enhance healthcare access for underserved communities.

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