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An Application to Report Disasters and Request for Resources

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ABSTRACT:

RescueHub is a comprehensive application designed to revolutionize disaster response coordination by providing a centralized platform for all rescue agencies to register and communicate effectively. By allowing agencies to input their location, contact details, and areas of expertise either manually or through automated GPS technology, RescueHub creates a dynamic database accessible through an intuitive interface. Users can easily navigate a map displaying the locations of registered agencies and utilize filters to refine searches based on specific criteria such as disaster type, available resources, or recent activity. Key features include seamless communication and collaboration functionalities, enabling agencies to send alerts, requests for assistance, and share resources securely within the application. Emphasizing stringent privacy and security measures, RescueHub ensures that only authorized users have access to sensitive information, safeguarding personal contact details and other confidential data.Overall, RescueHub represents a crucial innovation in disaster response management, providing a vital tool for enhancing the efficiency and effectiveness of aid delivery and response coordination during both natural and man-made calamities.

Keywords: Disaster Response Coordination, Centralized Platform, Rescue Agencies, Map Navigation Map Navigation, Alerts, Confidential Data.

I. INTRODUCTION

RescueHub is a centralized application aiming to streamline coordination among rescue agencies during natural or man-made calamities. It serves as a repository for vital details including location, disaster type, and available resources. Key features of RescueHub include map integration, which visually displays the locations of all registered rescue agencies, allowing users to see the geographical spread of resources. Additionally, filters enable users to refine search results based on specific criteria such as the type of disaster, available resources, or the time since the last reported activity. This functionality enhances the efficiency of resource allocation during emergencies.

By addressing the limitations of existing emergency response coordination systems, RescueHub aims to enhance the overall efficiency and effectiveness of disaster response efforts. Its user-friendly interface and intuitive design prioritize simplicity, enabling quick access to vital information during emergencies, ultimately serving as a valuable tool for improving the coordination and delivery of aid during times of crisis

RescueHub also facilitates communication and collaboration among agencies, enabling them to send alerts or requests for assistance directly through the application. Moreover, agencies can collaborate on shared resources such as medical equipment or transportation, optimizing resource in RescueHub's development, with robust measures implemented to ensure that only authorized users have access to the database and that sensitive information remains protected

II. RELATED WORK

The following systems have been studied and analysed: ‘FEMA Mobile Application (2011) launched in 2011 by the Federal Emergency Management Agency, is a vital tool for disaster preparedness and response management. This application provides users with timely alerts and notifications about natural disasters such as hurricanes, floods, and earthquakes. It delivers comprehensive preparedness information, including emergency safety tips, customizable emergency kits, and family communication plans. The app also offers access to crucial recovery resources, aiding individuals and communities in navigating the aftermath of disasters. With an interactive map feature, users can locate FEMA Disaster Recovery Centers and shelters. The app's user-friendly interface ensures that critical information and resources are readily accessible, enhancing the efficiency of disaster response and recovery efforts. a system needs to be constructed with the aforementioned two factors in mind, with the corresponding features being added. Features should be implemented so that the system earns income on its own to aid those in need The app also offers access to crucial recovery resources, aiding individuals and communities. From crafting personalized emergency kits and communication plans to locating vital shelters and recovery centers, the App streamlines the response process. This user-friendly platform ensures critical information is readily available, fostering a sense of control and resilience during emergencies. By providing users with real-time alerts and comprehensive preparedness resources for individuals.

American Red Cross(2012): Emergency Emergency app provides real-time alerts, disaster preparedness tips, and emergency information. Launched to enhance community resilience, it offers customizable notifications for various emergencies, practical safety advice, and step-by-step guides for different disaster scenarios. The app includes features such as interactive quizzes to test preparedness knowledge, a "Family Safe" function to check on loved ones during disasters, and a map to locate Red Cross shelters. Its user-friendly interface ensures critical information is readily accessible, aiding individuals in staying informed and prepared during emergencies.

paper was published in the year 2020. The user interface is very basic and android version they are using is outdated. The public will be able to upload any food-related information they'd like to contribute. The registered NGOs will be informed when the food is ready. No organisation may make a food request. Only NGOs who have registered may profit.

On top of a few minor technical issues, analysis has shown that the usability of these apps is significantly lower than average. Despite being a noble endeavour, the systems have received very little public attention, which makes them less popular.

In order for the systems to achieve their goals and assist as many people in need as possible, it is necessary for many individuals to band together to bring about this change and take an active role in it. However, studies on human psychology show that most people don't take active participation unless and until they perceive some outcome or benefits. Giving people incentives or rewards in exchange for their donations is therefore the ideal way to attract attention from the public and improve the usability of these programmers.

Limitations of space are the second area of focus for the system's poor usability. The usability of well-developed programmes is restricted to a few domains. In order to effectively manage the food distribution system and address the issue of food loss in India, a centralised system and competent administration are needed. The current systems were created with good intentions, but in order for people to actively participate, a system needs to be constructed with the aforementioned two factors in mind, with the corresponding features being added. Features should be implemented so that the system earns income on its own to aid those in need.

III. PROPOSED SYSTEM

RescueHub is a comprehensive application designed to revolutionize disaster response coordination by providing a centralized platform where all rescue agencies can register and communicate effectively. This proposed system addresses inefficiencies in current emergency response mechanisms by offering an integrated solution for disaster management. The architecture of RescueHub includes a client layer with user interfaces for mobile devices and web browsers, an application layer managing core functionalities such as user authentication, real-time notifications, data processing, and communication, and a data layer with a robust database storing information on rescue agencies, including locations, contact details, resources, and expertise. system facilitates seamless communication and collaboration among agencies, enabling them to send alerts, requests for assistance, and share resources securely within the application. Emphasizing stringent privacy and security measures, RescueHub ensures that sensitive information is protected, allowing only authorized users access to critical data. By enhancing efficiency and improving resource allocation through real-time updates and secure communication features, RescueHub addresses the limitations of existing emergency response coordination systems. Its user-friendly interface ensures quick access to vital information during emergencies, making it an indispensable tool for improving the coordination and delivery of aid during crises. Overall, RescueHub represents a significant innovation in disaster response management, providing a vital tool for enhancing the efficiency and effectiveness of aid delivery and response coordination during both natural and man-made calamities. This proposed system has the potential to significantly improve disaster response efforts, ultimately saving lives and resources during times of crisis.

IV. IMPLEMENTATION RESULTS

Android apps are written in the Java programming language. The Android SDK tools compile your code—along with any data and resource files—into an APK: an Android package, which is an archive file with an .apk suffix. One APK file contains all the contents of an Android app and is the file that Android-powered devices use to install the app.

Once installed on a device, each Android app lives in its own security sandbox: The Android operating system is a multi-user Linux system in which each app is a different user. By default, the system assigns each app a unique Linux user ID (the ID is used only by the system and is unknown to the app). The system sets permissions for all the files in an app so that only the user ID assigned to that app can access them. Each process has its own virtual machine (VM), so an app's code runs in isolation from other apps.

Returning to our results. Below figures are the mobile app's user-friendly UI, suitable for anyone with even basic app-using skills.

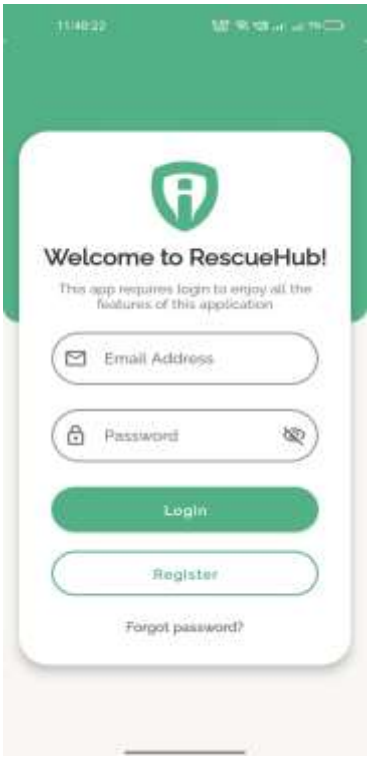

Fig: Login Page

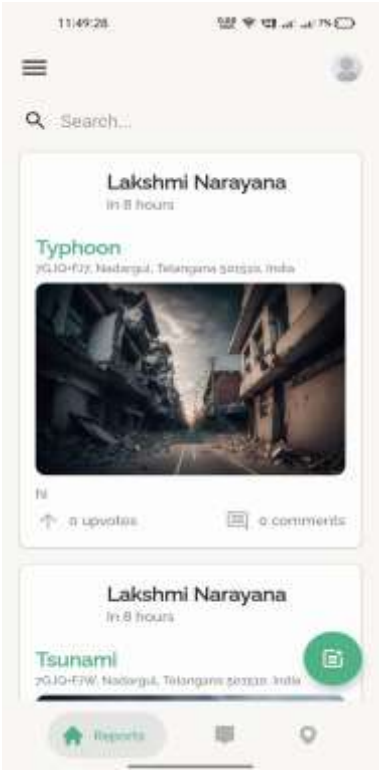

Fig: Home Page

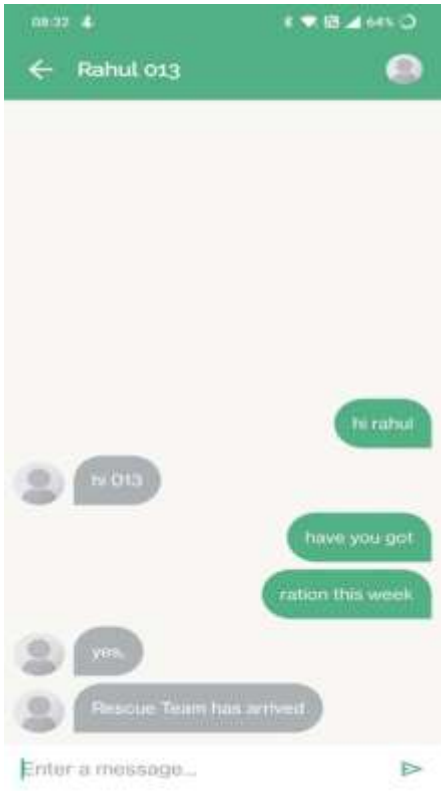

Fig: Chat section

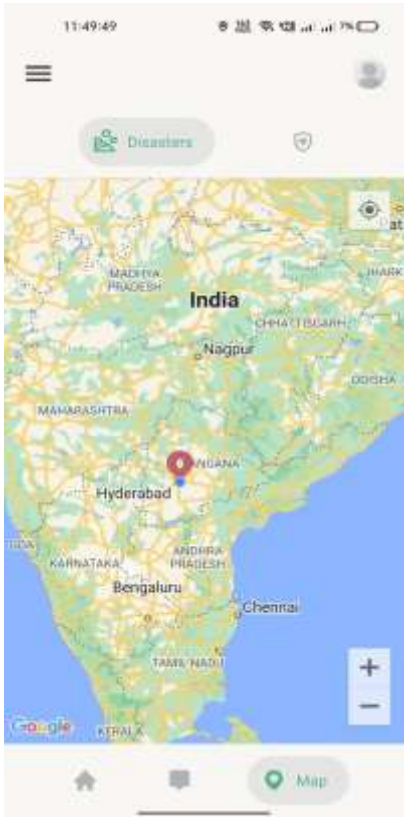

Fig: Maps

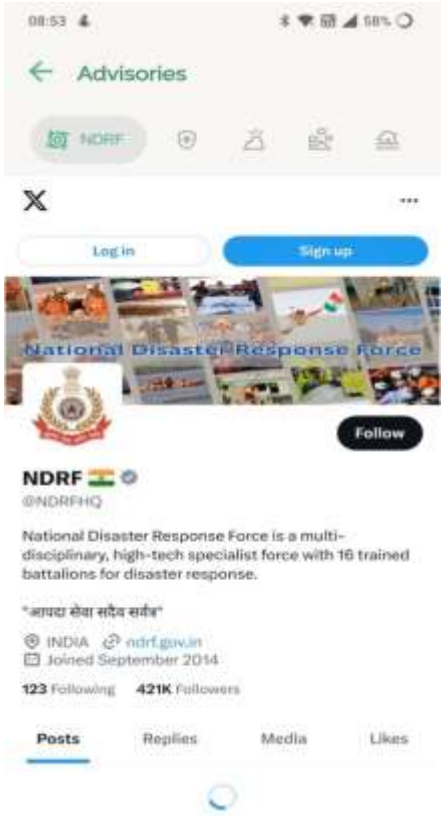

Fig: Rescue Agencies

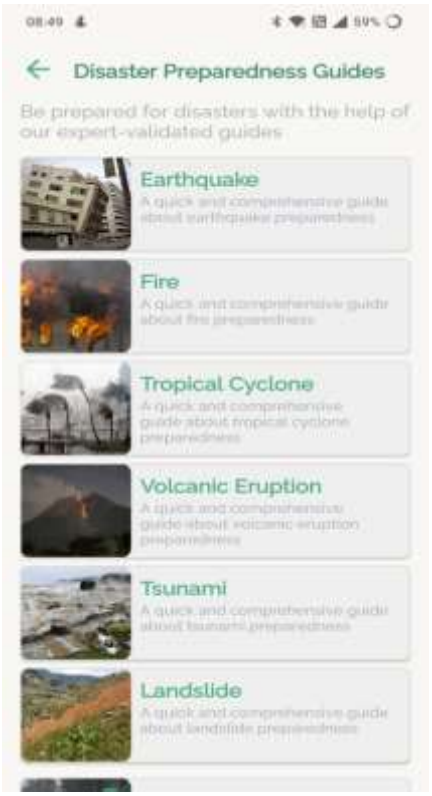

Fig: Type of Disaster

V. CONCLUSION & FUTURE SCOPE

In conclusion, Rescue Hub's innovative application addresses a critical gap in disaster response by providing a centralized platform for rescue agencies. This application not only facilitates real-time coordination but also enhances overall efficiency in emergency situations. The user-friendly interface, designed with both manual and GPS data input options, allows for flexibility and adaptability in various operational contexts.

There will be an even distribution of food. The majority of those who are unable to By offering a comprehensive map display and refined search filters, Rescue Hub ensures that rescue teams can quickly locate and allocate resources, significantly reducing response times. Moreover, the application's emphasis on secure communication is paramount. In disaster scenarios, maintaining the integrity and confidentiality of information is crucial. Rescue Hub's robust encryption protocols and secure data channels guarantee that sensitive information remains protected, thereby fostering trust among us The platform also supports seamless resource sharing, enabling agencies to pool resources and collaborate effectively, which is often essential in large-scale emergencies. Additionally, RescueHub incorporates advanced analytics to provide insights into response efforts, helping agencies continually improve their strategies. The analytics feature can track resource usage, response times, and overall efficiency, providing valuable data for post-disaster reviews and future planning. In addition to its core functionalities, RescueHub offers training modules and simulation exercises to help agencies prepare for different types of disasters. These training tools are designed to ensure that users are familiar with the platform's features and can operate it effectively when needed. The emphasis on training underscores RescueHub's commitment to preparedness and continuous improvement.Overall, RescueHub represents a significant innovation in disaster response management, addressing key challenges through its centralized, secure, and efficient platform. By enhancing communication, coordination, and resource allocation, RescueHub not only improves the immediate response to disasters but also contributes to the long-term resilience and preparedness of rescue agencies. This comprehensive approach ensures that RescueHub is not just a tool for managing crises but also a vital component in the ongoing effort to mitigate the impact of disasters and protect communities worldwide. Moreover the application is designed in such a way that at a time it can showcase multiple locatiions encountering the same issue or other issues too are shown. Total count or the total number of reporting done using the application. Its robust privacy measures, compliant with international data protection standards, further solidify its role as a valuable tool in disaster management. Furthermore, Rescue Hub empowers collaboration through seamless resource sharing and secure communication channels. Encrypted protocols safeguard sensitive information, fostering trust between agencies. Advanced analytics track resource usage and response times, enabling continuous improvement. Training modules prepare users for various disasters, ensuring platform proficiency. Rescue Hub goes beyond immediate response, promoting long-term preparedness and resilience.

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