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AGAP: AN EMERGENCY RESPONSE APPLICATION WITH REAL-TIME
GLOBAL POSITIONING SYSTEM TRACKING IN MANILA CITY

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INTRODUCTION

The study aimed to address the challenges in emergency rescue operations by developing AGAP: An Emergency Response Application with Real-Time Global Positioning System Tracking in Manila City. The application aims to serve as a vital tool in the emergency response infrastructure of Manila City by incorporating advanced functionalities such as live location sharing and real-time incident alerts. The study also aimed to help individuals have easy access to emergency assistance whenever they feel distressed or in danger and to help rescuers to have an efficient and effective response to emergencies. The AGAP system is color-coded based on the emergency type that the resident needs. Emergency responses are optimized by assigning the nearest responder to the incident. Residents can provide ratings and feedback to the responding personnel. The responders can also monitor the feedback and feedback received from residents. Administrators hold comprehensive oversight, monitoring all resident and responder accounts as well as managing emergency reports. The Philippines is located at the Pacific Ring of Fire, making it prone to earthquakes and volcanic eruptions. Manila City is divided into 16 districts and is composed of 896 barangays. Design a Mobile Application for Emergency Response with the following features: Reports directed to MDRRMO, BFP, hospitals, coast guards, and police stations. Through mobile phones, it enables quick, dependable gathering, access, and sharing of useful data and information during disasters. The Philippines is placed third among the world's most disaster-prone @@ countries in the 2018 World Risk Index with an index value of 25.14% (World Economic Forum, 2018)

METHOD

The mobile application utilized the Flutter-fire stack, which is Flutter and Firebase, and the Vue-Fire Stack. The rescuer provided permission for the mobile application to access the phone's location and notifications on the phone. The application accurately identifies the current location of the emergency and provides the best route to the location. Table 6 exhibits the required compatibility testing for the Agap Mobile Application. The web application was developed based on the specifications for the Firestore database. The application was used by two kinds of users: the resident or bystander and the rescuer. The application "AGAP" was opened using the mobile phone. Used Firestore instance that was initialized in the Flutter and Vue.js app which allowed querying, updating, and publishing data in Firebase. The admin could also monitor the dashboard, interactive map, and heatmap of incident reports on the menu. The user will successfully paralleled hierarchical login to the application using a number. The mobile application was created using Flutter with Firebase Auth, Firebase Storage, Firestore, and Geolocator. The app was used to improve the efficiency of Manila City's emergency response system. 30 respondents, including 10 IT professionals and 10 students, were invited to test the application. The researchers explained and provided a demonstration of on how to use the mobile application. They also provided a Diagram of the Agap Emergency Application Block Diagram. The study was published in the open-source software journal Apples to Apples. The application has an interactive map of the whole Manila city, and emergency reports will pop up. It also has a dashboard where all reported incidents are seen and displays rewards and badges. The database design manages different aspects of the system. The application also includes a website for the administrator. The listed test cases assessed the mobile application's learnability, appropriate recognizability, and user interface aesthetics of the mobile app. The app was developed using the Vue.js project and the Firestore database.

RESULTS

The AGAP application can be used to track the location of an emergency and provide feedback to the emergency response system. The web application can serve as the admin platform for the MDRRMO which could monitor, manage, approve, and reject reports that the available emergency response teams need to respond to. Users can upload their profile pictures, edit their names, and edit personal and medical information. The user can successfully log in to the application using a mobile number or account number. The AGAP app includes a user account management feature that enhances security and ensures proper use of the app Dashboard: AGAP Points. The app is limited to emergency response related and live tracking using a map. The resident can track the rescuer's location in real-time, providing a clear view of the fiercely-researched response. The AGAP application was evaluated to determine its acceptability Stations. The project description contains the project description, project structure, and evaluation for the project. The project aimed to develop a mobile application that could help residents have an efficient response time and communication during an emergency crisis. The rescuer mobile application was developed natively for Android using flutter, making it compatible to a wide range of Android devices. The app was able to fulfill the needs of both residents/ bystanders and rescuers by allowing residents to report emergencies and provide efficient routes to rescuers using maps. It was developed using modern web standards and JavaScript features used by Vuejs and Fire. SE APPLICATION 124 allows administrators to manage user accounts and approve rescuer registrations. Users earn AGAP Points for each completed emergency report, which can be used to unlock various badges. The app also allows individuals to register as Rescuers, making it easy to join and help others. Users create a profile with essential details such as name, email, gender, birth date, contact number, and emergency contact information. Users can view data from the current year and download reports for further analysis.

DISCUSSION

The developed mobile application was evaluated as 'Highly Acceptable' in terms of 'Functional Suitability, Performance Efficiency, Compatibility, Usability, Reliability, Security, Maintainability, and Portability'. The respondents evaluated the AGAP application as highly acceptable regarding the completeness, correctness, and appropriateness of the app. Test results showed that the functions of the mobile application were complete and were usable to the users. The app was rated as highly acceptable in identifying viewpoints and troubleshooting problems. The AGAP app allows the admin to monitor, manage, approve, reject reports to be able to filter emergency reports according to their level of intensity and urgency. Satellite connection access to allow the application to fully function properly is needed in low signal reception areas, especially in case of severe or high-level emergency situations. The AGAP EMERGENCY RESPONSE APPLICATION 137 provides a user-friendly and engaging user experience which is important for an emergency application. Usability Usability Allowed residents and rescuers to verify their identity with the help of AuthGuard by entering an OTP.