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DEVELOPMENT OF EARLY WARNING SYSTEM FOR FLOOD AT RECREATIONAL SITES USING ANDROID MOBILE APPLICATION

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ABSTRACT - Sudden floods that happen in recreational areas can cause harm towards tourists and residents near these bodies of water. This is all due to the lack of an early warning system that can notify unsuspecting visitors about this harmful incident. To solve this problem, an early warning system for flood at recreational sites was developed for Android phones. It will notify the user if a flood is predicted to happen. The methodology used is the Agile Methodology. A User Acceptance Test has been conducted to 15 respondents to test the functionality and usability. Overall, the application received positive feedback. Hence, the objective has been successfully fulfilled.

Keywords: Mobile application, android, early warning system, flood

1. INTRODUCTION

The objective of this project is to develop a mobile application that can display data about the water velocity and water level of a body of water in the recreational area and prior actions that can be taken during or before a flood happens. Secondly, to test and analyze a mobile application that can notify the users in case a flood is bound to happen at the recreational area. The project's scope is that the target users for this application is for visitors of Puncak Janing Waterfall. A pop-up notification will appear on the user's phone if a flood is predicted to happen at the recreational area. The water level and water velocity will be represented as line charts so that the users can compare these data in previous dates as well as the current ones. The mobile application will also allow users to post warning messages about floods that will happen in that area via Twitter application. Lastly, the mobile application will also focus on displaying understandable graphical methods and information regarding prior actions that can be taken before and during flood.

2. METHODOLOGY

The Agile Model is chosen as the framework for the project development. This project development comprises 6 phases namely Requirements phase, Design phase, Development phase, Testing phase, Deployment phase and lastly Review phase. In the Requirements phase, requirements of the mobile application will be verified after referring to previous works regarding mobile applications and comments from the stakeholders. Next, in the Design phase, the interface system and content that will be developed in this project is designed. In the Development phase, the mobile application will be developed according to the requirements decided before. Then, in the Testing phase, a Quality Assurance (QA) test will be conducted to justify the features and solve any of the problems encountered during this phase. Afterwards, the Deployment phase is when a running application is deployed. Lastly, during the Review phase, reviews from clients and stakeholders are collected to decide the requirements for later iterations.

3. RESULTS AND DISCUSSION

User Acceptability Test is carried out with 15 respondents chosen randomly. The questionnaire is split into usability testing, functionality testing as well as information on the respondents. The response given for the user usability testing questionnaire was based on ranking. The application had been tested prior to ensure it was functioning properly before letting the respondents test it. Most respondents answered strongly agreed and agreed for the easiness of using the application. The results also proves that both objectives have been achieved successfully in terms of data display and notification pop-up. Although the application received positive feedback, it still has its limitations.

4. NOVELTY OF RESEARCH / PRODUCT

The significance of this project is to provide an early warning system for floods to tourists of recreational areas. The project will also be beneficial as it will be accessible to most Malaysians. As the mobile application is developed for the Android operating system, the mobile application can be used by most Malaysian mobile phone users. One of the benefits of this project is that visitors of the recreational areas can always be aware and be prepared in case a flood is bound to happen. This is because water levels and water velocity of the body of water in the recreational area can be monitored live through users' mobile phones. Another benefit of this project is the user's awareness of preparations and early actions that needed to be taken during a flood can also be increased through graphical info presentation. Fuady, R., & Mutalib, A. A. (2018) published a report which stated that information presented through visual media is efficient as students love studying illustrated or animated texts. Another benefit of this project is that information of a flood occurring in the recreational place can be circulated faster as users can post about the flood via Twitter post.

5. CONCLUSION

In conclusion, this project has effectively accomplished all its goals. Early Warning System for Flood was practical and accessible from any location if there was an internet connection. It makes flood prediction easier.

REFERENCE

Fuady, R., & Mutalib, A. A. (2018). Audio-Visual Media in Learning. http://www.j-k6em.org