Mobile Web Applications For Damage Reporting Facilities and Infrastructure On Collage

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Mobile Web Applications For Damage Reporting Facilities and Infrastructure On Collage

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Abstract. Infrastructure is a very important in a college, the availability of facilities and infrastructure that will impact on the satisfaction of the academic community, to ensure that infrastructure is well maintained, it takes the role of the entire academic community to maintain and report to the relevant work units if there is damage. This research is trying to build a mobile web-based applications to simplify the reporting process to the facilities and infrastructure. Applications built not only include reports of writing, but the complainant can also take pictures of the damaged infrastructure. With this research, the reporting process is no longer done manually so more quickly, effectively, and efficiently, reporting can be done anytime via smartphone. Incoming reports will be monitored by the related units through a web-based system that they have henceforth will do the repair process.

1. Introduction

In college, the availability of adequate facilities and infrastructure that will impact on the level of satisfaction of the academic community and improve the quality of higher education. Improving the quality of higher education are consistently and continuously aims to obtain satisfaction and continuous development in higher education [1][2]. Existing facilities and infrastructure that would need supervision and care in order to maintain function and quality, the involvement and participation of stakeholders is crucial in the process [2]. In the current system, each reporting is still done manually, by phone or meet in person duly authorized officer, of course this is not very effective and efficient handling of infrastructure will require a long time, therefore it takes a applications that can overcome the problems of management tersebut.Aplikasi reporting is an application that can be used to improve the performance of an organization [3], at each reporting this application will be recorded and will be in responding to by the related units. In this paper, we propose the creation of applications management reporting damage to infrastructure-based mobile web with web concept responsive to applying the Framework bootstrap to design the application, so that the process is much faster because only one web designs are created that can adapt to the device any [4][5][6], , in addition, the web interface is generated into a simple, responsive, stylish, and lightweight [7]. before the existence of responsive web technology available today, there are two core issues, namely the contradiction too much resource is required and limited to the smartphone, then the second is the difference between a responsive design and user experience [8][9]. Company service provider to make two versions of the web to make the interface according to a different device or a different browser screen resolution between mobile and desktop [10][11].
2. Experimental Method

2.1. System Requirement Analysis
The study started from analyzing the needs of the college, several of the ingredients in the system that will be used to augment and assist the process of making an object. In this section will be divided into two parts, namely the functional needs analysis and analysis of non-functional requirements.

a. Functional Needs Analysis
   Analysis of the functional requirements are part of the exposure of the features that will be incorporated into the application to be made.

b. Analysis of Non-Functional Requirements
   Non-functional requirements analysis is the part that will support the course of the manufacturing process of the system, namely in the form of databases [12][13] The reporting damaged facilities and infrastructure in the college.

2.2. The design application
application design phase will contain reporting management application design facilities and infrastructure damage, where the draft through several stages of preparation of the Flowchart, DFD manufacture, realasi table, the menu structure on the smartphone application and interface design (interface).

![Application Design Structure](image)

3. Results & Discussion
In this section is part of the research program, before testing a number of things to consider including the completeness of software as a medium to build applications and smartphones as a tool to run the application. Here smartphone used is xiaomi note 2 to the Operating System android Kitkat with a 5.5 inch screen.

a. Results from this study is a reporting application infrastructure damage Based on the problems that have been identified and these applications can be used as supporting media in reporting damage to infrastructure in universities.

b. The reporting application only provides a menu of reporting damage to facilities and infrastructure so that these applications can be used easily as well as information on the progress reports that had been reported could be monitored directly from this application.

This application provides some of the material in the form of text and graphics, the main part is the implementation of the translation function each - each every menu.
Figure 2. Mobile Web Application Damage Reporting Facilities and Infrastructure

Figure 2 shows the view of the reporting application infrastructure damage in mobile devices, users can easily report the damage through their nominally smartphone to take a picture and then fill out a form with full reporting, including the location of facilities and infrastructure are in order to quickly get a response from related units. Whereas in figure 3, are shown in the display of admin page is a page that is used to view and respond to incoming reports, and print reports either daily, monthly or yearly quickly and accurately.

Figure 3. Reporting System Admin Page

4. Testing
At this stage the application is tested by two tests, namely the access time and system performance assessed by the respondents. Testing time data access information made to the equipment of different smartphone brands and versions of android. using wifi network access. Table 1 shows the results of these trials.

In Table 1 gives the average speed of access 5 second, the conditions this of course depends on the specifications of the mobile phone and the quality of existing bandwidth.

Tests on the performance of the system has been tested against the 10 respondents with smartphone device using brands and different Android versions. This test is performed to determine whether all of the features contained in this application according to user requirements, the following is a testing mechanism: ask the respondent to use all the features of the application. provide a questionnaire containing 10 questions to respondents. asked respondents to fill out a questionnaire
given about the system that has been tested. process the results of questionnaires filled out by respondents to the conclusion.

| Table 1 Testing time network access. |
|-----------------|-----------------|-----------------|
| **Brands**      | **Android version** | **Average time** |
| Smartphone      |                  |                 |
| Xiomi note 2    | Jellybeen        | 3 Second        |
| Xiomi mi max    | Lollipop         | 5 Second        |
| Xiomi note 4    | Lollipop         | 3 Second        |
| Lenovo a6000    | Jellybeen        | 6 Second        |
| Asus zenfone 5  | Jellybeen        | 8 Second        |

Questionnaire contains questions about the ease and performance of applications, with ratings TS = Disagree, BS = Neutral, S = Agree, SS = Strongly Agree. With a formula calculated as shown below.

\[ \text{Total Percentage} = \frac{N}{R} \times 100\% \]  \hspace{1cm} (1)

Note:
N = Value Answer
R = Total Respondents

Following the results of filling the questionnaire represented in a pie chart. As in Figure 4.

![Figure 4. Convenience and Performance of Applications](image)

5. Conclusion
From the test results it can be concluded that the application can meet the reporting of research goal is to report the damaged infrastructure in good condition, location, description and extent of the damage. And to see the development of the complainant reports that had stirred.

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