

MOBILE-BASED APPLICATION DEVELOPMENT FOR CAR AND MOTOR RENTALS

Kevin Hendersen¹, Novando Santosa², Sally Septia Halim³, Aswin Wibisurya⁴

^{1,2,3,4}Computer Science Department, School of Computer Science, Bina Nusantara University, Jakarta, Indonesia 11480

E-mail: ⁴awibisurya@binus.edu

Received: 02.05.2020

Revised: 01.06.2020

Accepted: 25.06.2020

Abstract

Many people who have private vehicles do not use their vehicles at all times so that over time the vehicles become poorly maintained and eventually damaged. Online Rental Application is here to help private vehicle owners to maximize the use of their personal vehicles while helping private vehicle owners to earn extra income. The purpose of writing is to develop applications that allow users to choose the vehicle according to their needs and to process the rental of vehicles both motorbikes and cars. The development method used is the waterfall method which consists of communication, planning, modeling, construction, deployment. The results are evaluated with 8 golden rules of interface design and the results of the questionnaire show that the application can be used by users and providers to make the process of renting and renting a vehicle. It was concluded that this application can be used well and can carry out the process of renting and renting vehicles for cars and motorbikes.

Index Terms -- Marketplace, Mobile Application, Private Vehicle, Rental Online

© 2020 by Advance Scientific Research. This is an open-access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>)
DOI: <http://dx.doi.org/10.31838/jcr.07.08.184>

INTRODUCTION

The development of technology from time to time increasingly rapidly both in developed countries and in developing countries including Indonesia. Information technology, especially in the field of mobile applications is also increasingly looked at by the public because of the many smartphone users at this time [1].

Economic growth in Indonesia which is getting better from year to year also increases the purchasing power of the community, especially for secondary needs such as motorcycles or cars. But motorized vehicle owners cannot use their vehicles continuously all the time. This can be caused by several factors such as traffic jams that make owners lazy to use private vehicles and prefer to use public transportation or online transportation, especially in the crowded and always congested city of Jakarta. Other factors can also be caused by the absence of a schedule or activities that need to be carried out in other places so that it does not require the use of a vehicle.

In addition, according to [2] motor vehicles that are rarely used can cause various problems, such as car batteries or motorcycles that will lose energy so the car or motorcycle cannot be started and in the end the car or motorcycle battery must be filled returned or replaced with a new one.

The solution to these problems is to create a mobile application that is used to rent vehicles that are not being used [3]. This application is able to make private vehicles more useful and at the same time provide additional income for vehicle owners.

RESEARCH METHOD

The data collection method that will be used for this application is a questionnaire. The questionnaire will be randomly distributed to respondents, both those who have motorized vehicles or those who do not have motorized vehicles. The questions that will be given in the questionnaire are in the form of whether or not the application is important for the author, the positive impact on the user, and also the respondent's view of the application the author made. The form of questions in the questionnaire will be closed, which means the respondent is only asked to choose the answer that has been provided [4].

In conducting research must be carried out a systematic drafting technique to facilitate the steps to be taken [5]. Likewise, what the author did in this study, the first step is to conduct a literature study on books that discuss software development methods, journals, and research that has been done relating to the rental system. Data obtained from this literature study will be used as a consideration during application development.

RESULT AND DISCUSSION

Based on the results of the questionnaire that has been collected, it can be concluded that the five measured human factors as a basis in the design of the interface as follows:

1) Time to study

Based on questions number 4 and 14, the use of the notification feature is very easy for most users to understand, which is 70% of the total respondents, then most users also find it very easy when adding vehicle schedules based on the respondent's response, which is 76.7% of the total respondents. Therefore, it can be concluded that the time for learning needed by most users to understand the Online Rental application is very fast.

2) Performance Speed

Based on questions number 8 and 9, searching for vehicles using the Online Rental application is very fast based on the respondent's response i.e. 56.7% of the total respondents. Then seen from the speed of performance in adding the schedule of vehicles that want to be rented out is very fast based on responses from respondents i.e. 76.7% of the total respondents. Therefore, it can be concluded that the speed of Online Rental application performance is very fast.

3) Error Level that Users Done

Based on questions number 10 and 11, it is known that the majority of users do not make many mistakes when making a vehicle ordering process that is 56.7% of the total respondents. Then the user also did not make many mistakes when processing vehicles, seen from the responses of respondents namely 66.7% of the total respondents. Then it can be concluded that the level of error committed by most users when using the Online Rental application is very low.

4) User's Memory

Based on questions number 12 and 13, most users are easy to remember the steps to order a vehicle, seen from the responses of respondents namely 56.7% of the total respondents. Then it can also be seen that the majority of users can remember the steps in adding a vehicle availability date very easily based on the respondent's response i.e. 73.3% of the total respondents. Therefore, it can be concluded that the memory of most users when performing a task in the Online Rental application is very good.

5) Subjective Satisfaction

Based on questions number 15 and 16, it is known that the majority of users feel very satisfied with the vehicle ordering system in the Online Rental application based on the responses of respondents i.e. 63.3% of the total respondents. Then most of the users also felt very satisfied when renting their vehicle using the Online Rental application, based on the responses of respondents, namely 76.7% of the total respondents. Therefore, it can be concluded that most users are satisfied with the Online Rental application.

CONCLUSIONS AND SUGGESTIONS**A. Conclusion**

A mobile-based application development system for car and motorbike rental was built using Android Studio software that uses the Java programming language and uses firebase as the database. This application has been tested and is already running well.

Based on the results of developing mobile-based applications for car and motorcycle rental, it can be concluded that:

1. This application can be used to choose vehicles according to the needs of the community.
2. Online Rental Application can be used to make the process of renting and renting vehicles in the form of cars and motorcycles.

B. Suggestion

Suggestions for further development of mobile-based applications for car and motorbike rental, based on questionnaire and evaluation in development, by adding a few points so that the application can be better in the future:

1. Rating feature where the rating feature can be used as review material for users, providers, and service providers.
2. The advanced search feature to increase the convenience for users to find a vehicle that they want.
3. Adding an integrated payment system in the car and motorcycle rental application to improve the security system in the transaction, so that users and service providers can be more comfortable in making the payment process.
4. Adding the "near me" feature, which is a feature where users can search for the nearest vehicle rental from the user's location.
5. Add an application for the admin that is useful for registering and removing vehicles.
6. Add a maximum limit to cancel an order much of three times a week.

REFERENCES

1. IDC, Smartphone Market Share, 2017. Available: <https://www.idc.com/promo/smartphone-market-share/os>
2. C Collins, *Simple Fixes for your Car: How to do Small Jobs yourself and Save Money*. England: Veloce Publishing Limited, 2012.
3. D. Kesrarat, S. Songcharoenkit, P. Nanthapornpisut, and L. Thawonthammarat, *Smart Matching for Car Rental*. Singapore, 2017.

4. J. L Whitten and J.L Bentley, *System Analysis and Design Methods*. 7th Edition. America: McGraw-Hill, 2007.
5. R.S. Pressman and B. R. Maxim, *A Practitioner's Approach*. 8th Edition. New York: McGraw-Hill, 2014.