MULTIPLATFORM MOBILE APPLICATION DEVELOPMENT FOR VEHICLE RENTING AND SHARING SYSTEM

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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, modelling, 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.

Keywords: Marketplace, Mobile Application, Private Vehicle, Rental Online

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.

LITERATURE REVIEW

1. Sandeep Gupta, Attaullah Buriro, Bruno Crispo "DriverAuth: Behavioral biometric-based driver authentication mechanism for on-demand ride and ridesharing infrastructure."

A behavioral-biometric-based authentication [1] scheme in the context of on-demand ride and the rideshare services. The approach can be extremely useful to verify drivers remotely. This scheme can be extended to verify the intended riders as well the scheme is unobtrusive as verification is performed in the background and is invisible to the driver. The scheme has shown resistance to mimicry attacks as the invisible person-specific behavioral modalities. Owing to space limitations, they will report the detailed methodology and the results of an extended empirical evaluation in a future paper. they will also explore the impact of its extension in terms of more

modalities and they will evaluate them in terms of their accuracy, performance, and usability.

2. Kacem Abida, Rainer Stahlmann, Florian Netter, and Carlo Ratti "Driving Behavior Analysis through CAN Bus Data in an Uncontrolled Environment." Driving behavior analysis has been studied from a new point of view, that bridges the gap between driving behavior studies through uncontrolled experiments leveraging only the GPS signal and studies exploiting CAN bus data through very controlled experiments. This work proposes a methodology for delineating similarities among drivers using data collected in a completely uncontrolled experiment, through a clustering algorithm performed on seven different features of eight signals recorded by CAN bus sensors, with a distributional approach.

3. Dr. P. Kishore Kumar1, Dr. N. Ramesh Kumar2 "A Study on Factors Influencing the Consumers in Selection of Cab Services." The customer satisfaction about the call taxi services, the factors they give importance in selection of the service provider, tariff, comfort, convenience, service quality and customer care rendered [5]. The finding depicts the exact replica of the customer's mindset and level of satisfaction towards the service providers operating the call taxi in the Chennai market. Appropriate suggestions were provided considering the facts and feasibility, if the market players take these outcomes into account and act, its sure to create fullest satisfaction rather delight the customers and expand the market base. This will also help the service providers full fill the customer expectation that fetches the good will and develop their brand image in the market.

Competition is a natural trait of any market. It offers customers with the possibility to choose between multiple variants. At the same time, it forces the producers to innovate and outweigh disadvantages of their products with bonus features.

Just like any other market, this is true also for smartphones and mobile operating systems. However, the benefits and variety for customers on one hand represent challenges for mobile app developers on the other. They stand before a difficult decision - to either implement their application multiple times for each operating system, or stay exclusive to a single platform and ignore all the others.

Another problem, besides the fragmentation, are the perpetual changes in operating systems themselves and their market shares. While only few years ago, Symbian was the dominant platform, since 2010 Android is the king of the smartphone world. Between years 2009-2016 there have been 12 major version changes and 24 API changes for Android. It is similar for iOS, currently the second strongest mobile OS, with 10 different versions since 2008. While Android and iOS changed their versions, they remained faithful to their respective development technologies. This cannot be said of Windows, which from Windows Phone 7 to Windows 10 Mobile swapped several different technologies (XNA, WinRT, Silverlight and UWP).

Implementing the same app over and over again using different languages and APIs is a boring and tedious task for developers, and a waste of time and money for IT companies. Soon, solutions and tools allowing development for multiple platforms, while writing the code just once, began to emerge. As of September 2016, there can be found more than 100 of these multi-platform development tools for mobile operating systems. There is a common fear that multi-platform applications are inferior compared to native development. However, according to several surveys, 81% developers claim multi-platform applications being as good as native (or even better), while saving 50+% of development time (compared to developing 2-3 native apps) [14]. However, the same study reveals that majority of multi-platform projects are planned for short term (up to 3 months of development).

Some of these tools offer code-free programming. Others provider optimization of web applications for mobile browsers. There are solutions for truly native apps developed with a single code base, or hybrid apps that are programmed as web apps, but have access to device hardware. And for game developers, there are multiple frameworks and engines for both 2D and 3D development.

However, choosing the right development tool can be a difficult task. Often, many products seem to provide the same functionality. The devil is always in the details, and discovering a missing framework

capability in the middle of development process can result in wasting of several months of work.

RESEARCH METHODOLOGY

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.

CONCLUSIONS

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.

REFERENCES

[1] Sandeep Gupta, Attaullah Buriro∗, Bruno Crispo, “DriverAuth: Behavioral biometric-based driver authentication mechanism for on-demand ride and ridesharing infrastructure”, DISI, University of Trento, Trento, Italy, ICT Express (2018), ttps://doi.org/10.1016/j.icte.2018.01.010, 24 January 2018.

[2] Umberto Fugiglando, Emanuele Massaro, Paolo Santi, Sebastiano Milardo, “Driving Behavior Analysis through CAN Bus Data in an Uncontrolled Environment”, IEEE TRANSACTIONS ON

INTELLIGENT TRANSPORTATION SYSTEMS, IEEE, 2018, 1524-9050.

[3] Dr. P. Kishore Kumar, Dr. N. Ramesh Kumar, "A Study on Factors Influencing the Consumers in Selection of Cab Services", International Journal of Social Science and Humanities Research ISSN 2348-3164, Vol. 4, Issue 3, Month: July - September 2016, pp: (557-561).

[4]. IDC, Smartphone Market Share, 2017. Available: https://www.idc.com/promo/smartphone-market-share/os

[5]. C Collins, Simple Fixes for your Car: How to do Small Jobs yourself and Save Money. England: Veloce Publishing Limited, 2012.

[6].D. Kesrarat, S. Songcharoenkit, P. Nanthapornpisut, and L. Thawonthammarat, Smart Matching for Car Rental. Singapore, 2017.

[7]. J. L Whitten and J.L Bentley, System Analysis and Design Methods. 7th Edition. America: McGraw-Hill, 2007.

[8]. R.S. Pressman and B. R. Maxim, A Practitioner's Approach. 8th Edition. New York: McGraw-Hill, 2014.