

The Development of Android-Based Mobile Application of LaundryPlaces

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Received: 11.03.2020

Revised: 12.04.2020

Accepted: 28.05.2020

Abstract— The purpose of this thesis is to design a mobile search service locator nearest laundry shop with the name "LaundryPlaces" as an alternative means for laundry service customers who are looking for information about their laundry shop. In addition, this application can also help laundry service customers to be able to order online laundry service laundry shop that has been working together. The research method used to analyze when the development of this application is data collection, by making questionnaires and interviews to obtain clear data from the respondents and resource persons. Study the literature, looking for sources related to the writing of this thesis through books, journals, e-books, or articles. Comparison of similar mobile applications, make comparisons to mobile applications that have the same concepts and features as the application you want to create. While the research method used for the development of this application is Waterfall which has 5 patterns of processes, namely Communication, Planning, Modeling, Construction, and Deployment. Waterfall selection itself because this method is a method that is easy to apply, simple, and easy to understand. Storyboard is used to design UI from screen to screen about this mobile application. The results obtained from this writing show that users can feel the great benefits of laundry search feature nearby and can also perform laundry service orders from the application "LaundryPlaces". "LaundryPlaces" can help its users as a tool to search laundry shop easily and can do laundry service order anytime anywhere as long as laundry shop willing.

Index Terms— Android, Laundry, Mobile.

I. INTRODUCTION

Laundry is a facility where clothes are washed and dried. Laundry usually uses an automatic washing machine called a laundromat or general trademark [1]. With the development of clothing models and various knick-knacks, for example, the types of clothes that have many motifs that are not easy to wash themselves and various other types of equipment such as washing towels, washing shoes, washing blankets, washing bedcover, washing bags, and others.

The growth of the laundry business in Indonesia currently shows a significant development. Not only in big cities, even in remote areas, now the laundry business is mushrooming with various facilities and service offers [2].

The rampant of the laundry business also cannot be separated from the increasingly high level of public trust in laundry services. In addition, changes in the lifestyle of people who prefer to go to laundry instead of washing themselves prove that this business has very promising prospects.

Because the laundry business is growing rapidly, many people are starting to open a laundry business in areas that are inhabited by migrants. Like around the University or nearby offices that rent lots of rented houses and boarding houses. However, not a few people who do not know there are laundry shops around them and prefer to wash alone or subscribe to the same laundry shop. Though there are many choices with different price ranges and different facilities.

In addition to the development of a laundry business that has increased significantly, the lifestyle and trends of society that must be instant also affect the development of smartphone usage in the world. This is supported by [3] from the results of his research that there were 4.4 billion smartphone users in 2017 and projected to grow to 7.3 billion in 2023. Indonesia is one of the countries that has developed smartphone developments rapidly. Quoted from [3], Indonesia is ranked 3rd of the top 5 countries of new smartphone users in 2017, with the addition of 7 million smartphone users. With the growth of smartphone usage which has increased the use of the internet in Indonesia, the average user accesses the internet using a mobile device. Then in ASEAN countries, smartphone users in Indonesia are very high, at 48%. The number of smartphone users in Indonesia is the highest when compared to other ASEAN countries.

Under these circumstances, we aim to create a smartphone application that can make it easier for users to find the nearest laundry shop. So hopefully with the application to search for laundry shops can be used by everyone who wants to use laundry services.

II. RESEARCH METHOD

Several research methods are applied in making the application "LaundryPlaces" including data collection methods where in this method the literature study process is carried out to collect theories related to the development of the "LaundryPlaces" application, the interview process to get the needs of the Laundry Vendor for problems or obstacles encountered, the questionnaire process is carried out by giving questions to the public and the laundry shop owners about the features that can help them, as well as the Document Examining process to study the proposal template so that it can be applied to one of the features "LaundryPlaces".

In addition to the data collection method, there is also the application of the design method to support the process of designing the "LaundryPlaces" system. In the system design process, the Object-Oriented Analysis and Design (OOAD) approach is applied so that the Unified Modeling Language (UML) is used as a system modeling method that includes Use Case Diagrams, Use Case Descriptions, Activity Diagrams, Class Diagrams, and Sequence Diagrams. Entity Relationship Diagrams (ERD) are also used to design the "LaundryPlaces" database system and the use of interface design methods to describe the "LaundryPlaces" user interface.

Another research method used in the development of "LaundryPlaces" is the Waterfall software development method. In the Waterfall method, there are 5 stages, namely communication, planning, modeling, construction, and deployment [4]. At the communication stage, the data collection process includes interviews and questionnaires. Data from interviews and questionnaires will then be used to assist the design process. In the planning stage, the process of setting the time for making an application is done by making a Gantt chart, to clarify the timeline of developing the "LaundryPlaces" application. Furthermore, the process of modeling or designing the system "LaundryPlaces" uses UML to design the system flow, ERD to design the database system and interface design. When the modeling process is finished, then proceed to the construction process. In this process, application features are developed by adjusting the design results from the modeling stage. The "LaundryPlaces" system was developed using the JavaScript-based React active framework for mobile systems and the Laravel framework for backend systems and Content Management System (CMS) [5]. The REST API architecture is used to integrate mobile systems with backend. Whereas MySQL is used to build database systems. In the final stage, the deployment process is carried out by User Acceptance Testing (UAT) using the black box testing method to test the functionality of the "LaundryPlaces" application system based on the Success Scenario. The testing process itself is carried out by Bina Nusantara University students and representatives of the Laundry Vendor.

III. RESULT AND DISCUSSION

The results achieved are an Android-based mobile application called "LaundryPlaces" for users and "LaundryPlaces Vendors" for laundry shop owners. LaundryPlaces can make it easier for users to find the nearest laundry shop and can order laundry services using this application. Users can also see the rating and see directions to the laundry shop. For vendors, vendors can filter incoming orders from users, whether they want to be accepted or not, in addition, vendors can also be helped because the laundry shop can be known by users who use the application "LaundryPlaces".

The LaundryPlaces system was developed using the JavaScript-based React Native framework for mobile systems and the Laravel framework for backend systems and Content Management System (CMS). The REST API is used to connect a mobile system with a backend via an HTTP request. Whereas MySQL is used for database systems. Here are the final display results of the LaundryPlaces mobile system.

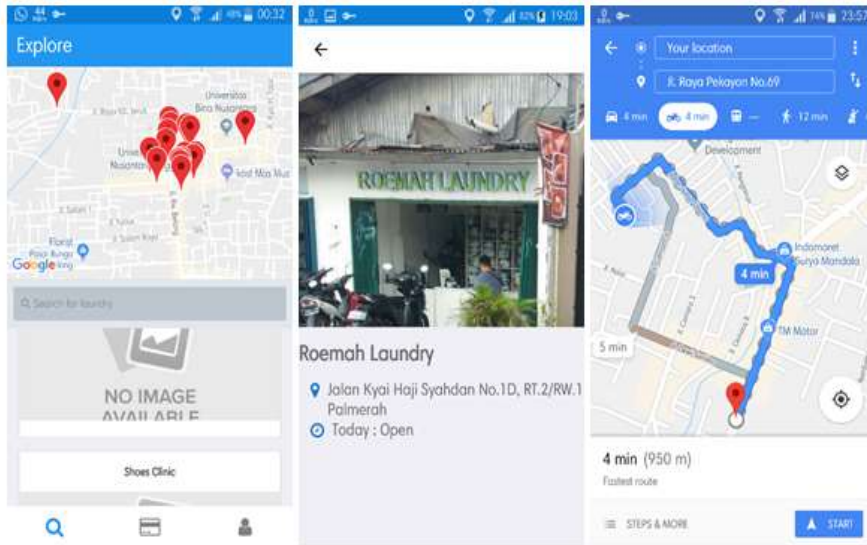


Fig. 1. (left to right) Explore Page, Laundry Detail Page, Google Maps Direction Page

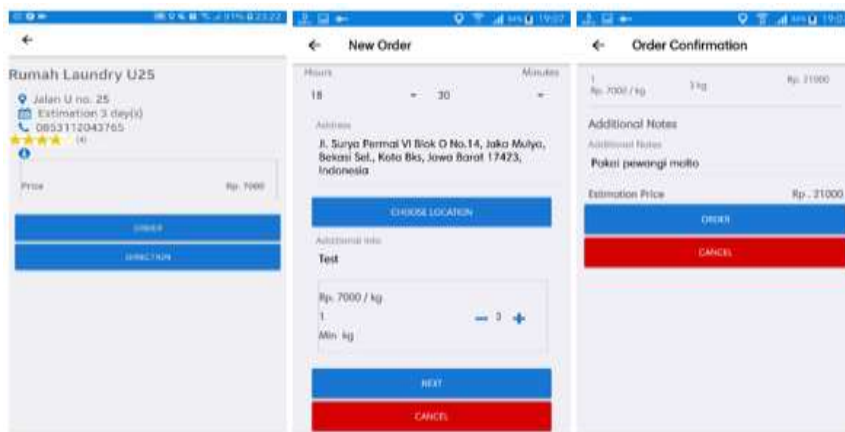


Fig. 2. (left to right) Laundry Detail Page that Works Together, New Order Page, Order Confirmation Page



Fig. 3. (left to right) Tab on Progress Transaction, Order History Tab, Transaction Detail Page that Current Running

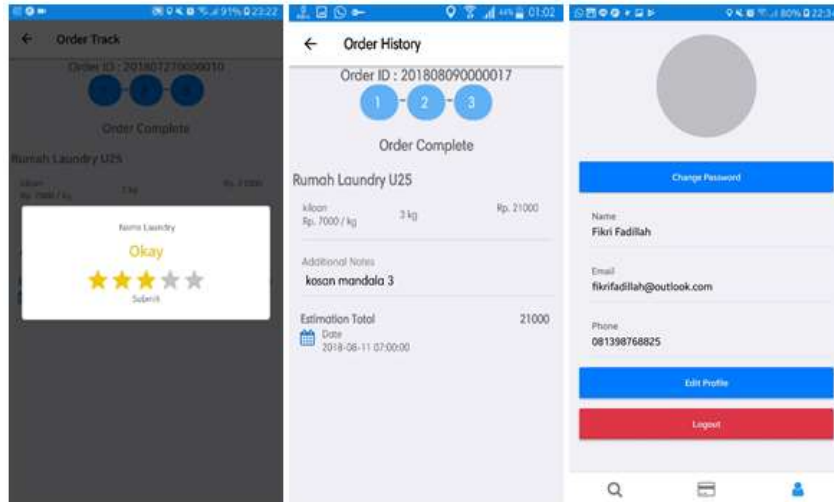


Fig. 4. (left to right) Popup Rating, Order History Details, Profile Page

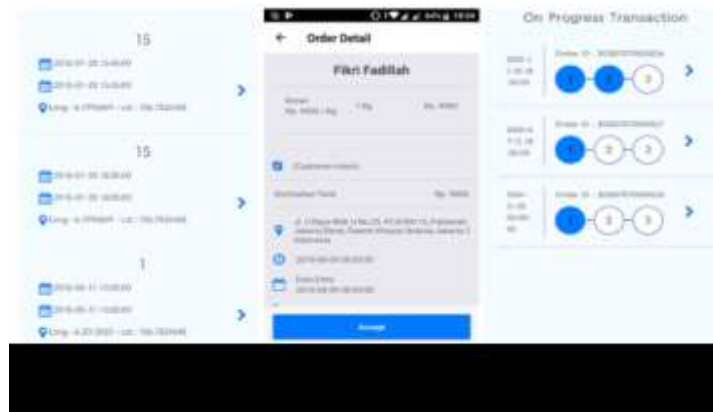


Fig. 5. (left to right) Order Approval Page, Order Detail Page, Page on Progress Transaction

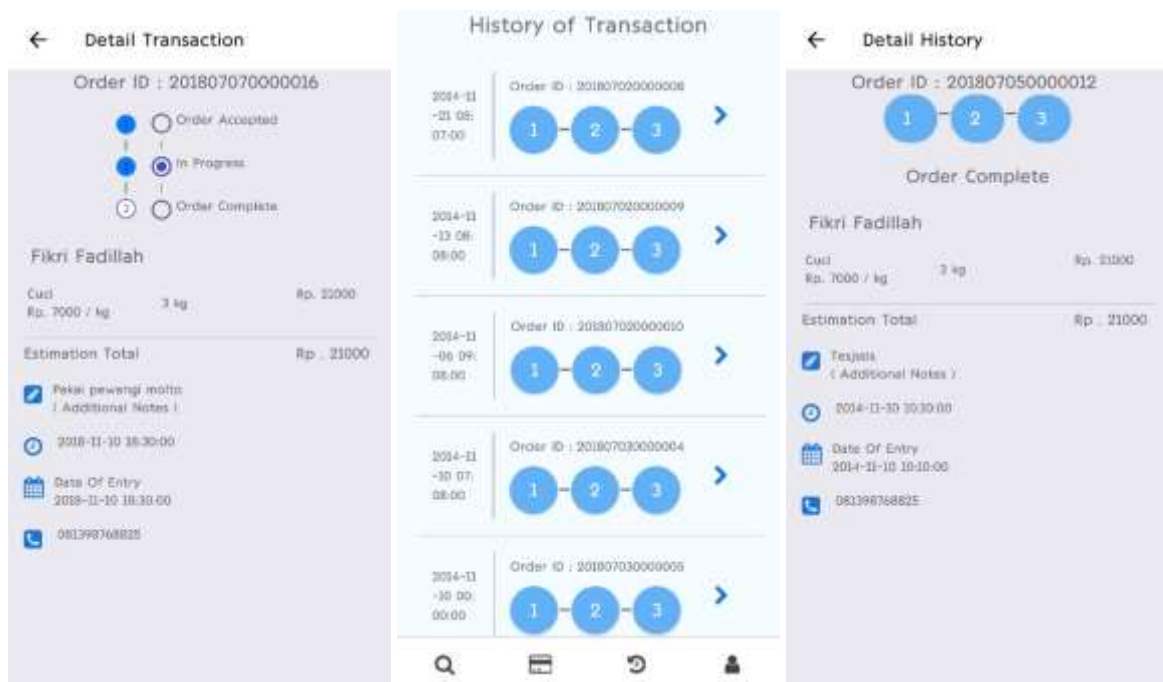


Fig. 6. (left to right) Transaction Detail Page, Transaction History Page, Transaction History Detail Page

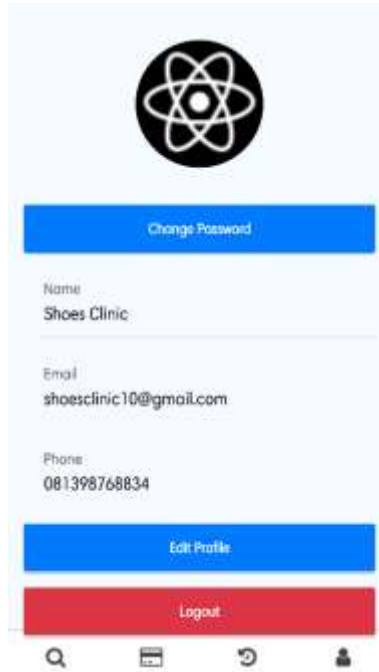


Fig. 7. Laundry Profile Page

IV. CONCLUSION AND SUGGESTION

Based on the results of making the mobile-based application "LaundryPlaces", the following conclusions can be obtained:

1. Making the application "LaundryPlaces" has made it easier for Users to find the nearest laundry place.
2. Making the application "LaundryPlaces" has made it easier for the Laundry Owner to promote his laundry.
3. Making the application "LaundryPlaces" has made it easier for Users to order laundry using a smartphone with the online order feature.
4. Making the application "LaundryPlaces" has made the user feel comfortable using the Laundry Places application because of the tracking feature.

There are a number of suggestions given for future application development, namely:

1. Provide Chat features to make it easier for users to communicate with vendors Laundry.
2. Provide Rate Review features to make it easier for users to find quality laundry in accordance with the value provided.

V. REFERENCES

- [1] Freshlab, *Pengertian Usaha Laundry*, Feb. 2015. Available: <http://www.pewangilaundry.co.id/pengertian-usaha-laundry.html>
- [2] Medan Bisnis Daily, *Sukses Berbisnis Laundry*, Oct. 2013. Available: http://medanbisnisdaily.com/news/read/2013/10/16/56643/sukses_berbisnis_laundry/
- [3] Ericsson, "The Ericsson Mobility Report," 2017.
- [4] Y. Bassil, "A Simulation Model for the Waterfall Software Development Life Cycle," *International Journal of Engineering & Technology*, vol.5, no.2, 2012.
- [5] V. Novick, *React Native - Building Mobile Apps with JavaScript*, Birmingham: Packt, 2017