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DESIGN AND DEVELOPMENT MOBILE APPLICATION OF BUDDHISM E-PARITTA USING FLUTTER FRAMEWORK AND SDLC METHOD

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ABSTRACT

Covid-19 pandemic has brought an impact to all kind of activities, including religious worpship activities in Indonesia. Buddhism are the religion was found in india, in general Buddhism are devided to 3 main teachings which is Buddha, Dhamma, and Sangha. Chanting using Parita are practice recommended by Buddha, but due Covid-19 Pandemic many buddhists cannot go to monastery and Paritta is book that provided by monastery. One of the main issues that occur among buddhists during the pandemic was do not have an access to Paritta and did not memorize the chanting script because the language used in Paritta are Pali. However, the solution of that problem is rather simple, one of which is digitalization. This Paritta can be turned into mobile application to help buddhists to access the Paritta. In this study, we have designed a mobile application for Paritta to become E-Paritta using Flutter framework and SDLC Method. Author want to produced a mobile application that have intuitive design, simple workflow and seamless user experience. By designing and developing this mobile application, author are attempt to help people had no access to Paritta.
Keywords*: Mobile Application, Buddhism , Flutter Framework,*

INTRODUCTION

Covid-19 Pandemic has given us an impact to every activity, including worship activities in Indonesia. Rules of keeping distance that applied by government and lockdown require religious people to do worship activities without going to the place of worship. Because of that many of religious people has difficulty in worshiping and Buddhism was one of them.

Buddhism was religion that came from India, in general Buddhism can be summarized into 3 mains of teachings, which is Buddha, Dhamma, and Sangha. Tripitaka book is Buddhism scripture that consists of Vinaya Pitaka, Sutta Pitaka, Abhidhamma Pitaka. Paritta means “protection”, Paritta is scripture that contain word of Buddha that used for worship activities (Siahaan, 2019). Many of technology developed year by year for helping and facilitate human beings for doing daily activities. Among of variety of technology that developed, smartphone were popular and commonly used at this time (Lengkong et al., 2018). On every smartphone has its own operating system such as Android or iOS and Android are the most popular operating systems at this time. Android are open source, so that every people can make application for Android and publish it to Google Play Store (Maiyana, 2018). Flutter is SDK or Software Development Kit for developing mobile application that invented by Google with open source license that can build user interface for Android and iOS application. This framework can run natively on iOS and Android device, made using C, C++, Dart, and Skia make Flutter is one of the most interesting frameworks to learn (Sudrajat, 2021).

E-Paritta is Paritta that converted from book into mobile application, this are require because at this pandemic everyone need to do worship activities at their home. Because of that many of them who do not have Paritta has difficulty to worshiping and the Paritta distribution are limited from each monastery.

LITERATURE REVIEW

Related Research

There are various researchers who create mobile application, one of which is (Siahaan, 2019) in this research researcher emphasize how

to applied approximate algorithm to application. This research was intend to design and developing a searching algorithm to mobile application, algorithm that used by author are Matching Approximate String and Levenshtein Method. The result of this research are a Paritta application with Matching Approximate String Algorithm and Levenshtein Distance method.

Another research done by (Sudrajat, 2021), on this research explain about usage of framework while developing a mobile application. This research intend to design and developing a coffee shop application so that customer didn't need to come to order a cup of coffee. On development the author using Flutter framework and the result are a mobile application for coffee shop. Another research done by (Maiyana, 2018) was research that applied SDLC method to mobile application. On this research explain about method are required to maintain and developing an application. Method that used on this research was Software Development Life Cycle or SDLC. Result of this research are Android application "collection of prayer".

Software Development Cycle

SDLC consists of a few phases like planning, analysis, design, and implementation. Many SDLC models have been created like Waterfall, Spiral and V-model etc. Waterfall model is one of traditional SDLC model, it follows only the sequential order. It flows steadily downwards and it is used in the software development process.

RESEARCH METHODOLOGY

The following is the research's design flow:

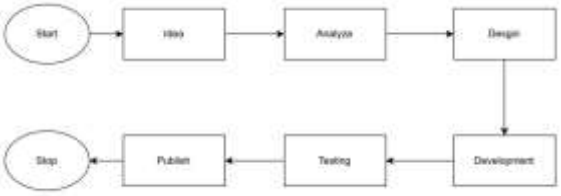

Figure 1. Design Flow

1. Idea
   Author searching for idea as initial form of project from internet, articles, etc.
2. Analyze
   The background, problem identification, research objectives, timeline and scope are updated at this phase.
3. Design
   At this phase, author create the user interface, entitiy relationship diagram, use case diagram, system workflow and many of aspect mobile application that already exposed on step before.
4. Development
   Developing the mobile application based on phase idea, analyze and design. Create various prototype and updating system weakness
5. Testing
   This phase is to testing the protoype or finished product from development phase, at this phase require to address the system weakness and detecting system flaws. Testing and Development phase will repeated until the flaws and weakness of system has been resolve.
6. Publish
   System will be launched and ready to publish into public

The following are some of the techniques used in system development:

1. Software Development Cycle

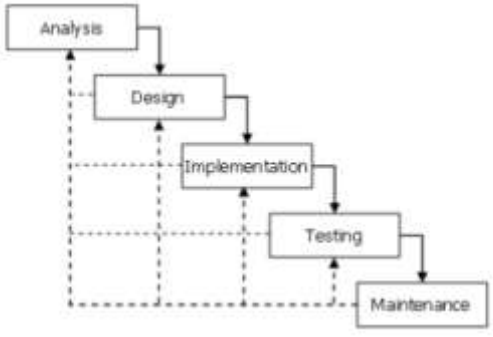

Figure 2. SDLC Waterfall Method (Sudrajat, 2021)

a. Analysis
   Author will gather information and analyze the system requirements. Information was gathred from observation articles, and interview.
b. Design
   Data will processed to prevent problem that would occur and analyze system

requirements including use case diagram and activity diagram.

c. Implementation
Create various protype and update a system flaws and weakness

d. Testing
Testing finished product from implementation phase to detect the flaws and weakness.

e. Maintenance
Maintenance the system by repeat testing and implementation.

2. Activity Diagram
As a reference for system developmen, the activity diagrams are compiled as follows:

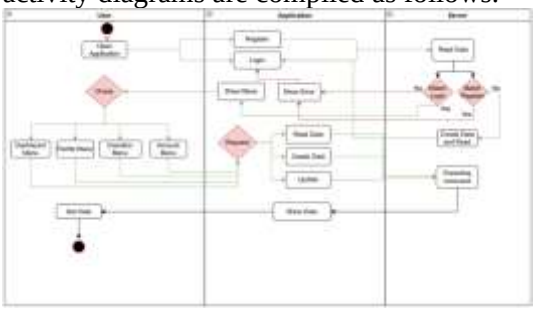

Figure 3. Activity Diagram

RESULT AND DISCUSSION

Next step is to analyze and formulate user requirement as basic reference to give the solution for the problem. For analysis the requirement is to develop the mobile app where's the users can access and get the information of Paritta, list of chanting, list of monasteries, list of donations, create new donation, update user information, and create their own list of chanting quickly and efficiently. Result of formulating be the basis of design and development using Flutter framework and become solution for Buddhist people on doing worship activities. To create a good quality of system, system require to have a method which are system development cycle or Software Development Life Cycle (SDLC). To simplify and sharpen the system development flow, a sketch in the form of diagram is create from the data obtained. The diagrams generated include, Use Case Diagrams and Entity Relationship Diagrams (ERD).

a. Use Case Diagrams
Use case diagrams are representations of the relationship between user component and the system. Use case diagrams can also be used to explain what task occurs in a system and to show how actors and systems interact. The following is a diagram of the use case diagrams used in this study:

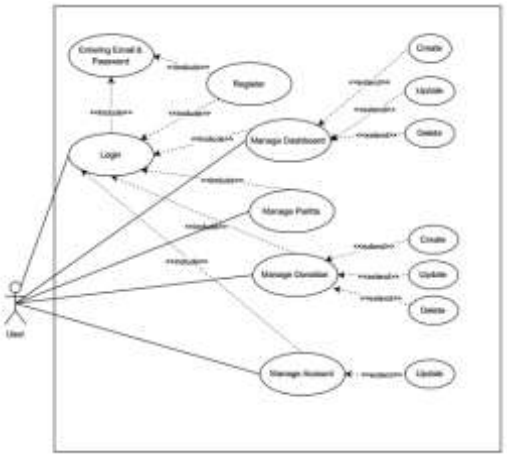

Figure 4. User Use Case Digaram

b. Entity Relationship Diagram
Entity Relationship Diagram or ERD is term used to describe how data is organized. The following is a diagram of the ERD used in this study :

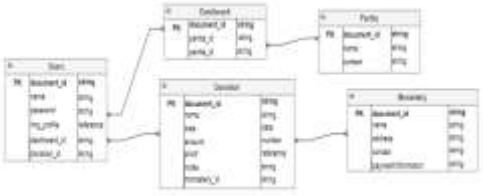

Figure 5. Entity Relationship Diagram

From result of concept that been made, the next step are create the user interface for system to visualized. The following is a design that used in this study :

Table 1. Login Feature

No	Name	Feature
1	Splash Screen	1.Image

		2.Button Get Started
2	Login	1.Input Email 2.Input Password 3.Button Sign in 4.Button Forget Password 5.Button Sign Up
3	Registration	1. Input Name 2. Input Email 3. Input Password 4. Input Confirm Password 5. Register Button 6. Sign in Button

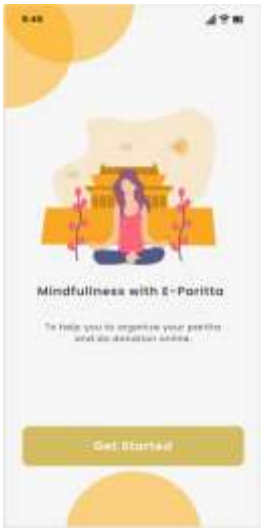

Figure 6. Splash Screen

Figure 7. Login Display

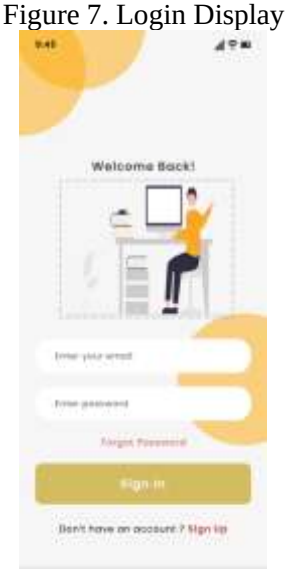

Figure 8. Registration Display

Figure 9. Forget Password Display

Table 2. Home Feature

No	Name	Feature
1	Dashboard	1. Button Add new dashboard 2. Button Edit/Save dashboard 3. Input Title 4. Input Chanting List 5. Content

Figure 10. Dashboard Display

Figure 11. Add New Dashboard Display

Figure 12. Dashboard Content Display

Figure 13. Paritta Content Display

Table 3. Paritta Feature

No	Name	Feature
1	Parrita	1. Content

Figure 14. Paritta Parent Content Display

Figure 15. Paritta Main Content Display

Figure 16. Paritta Content Display

Table 4. Donation Feature

No	Name	Feature
1	Monastery	1. Content
2	Donation	1. Add new Donation 2. Input Title 3. Input Donation Date 4. Input Amount 5. Input Proof 6. Input Notes 7. Content

Figure 16. Donation Display

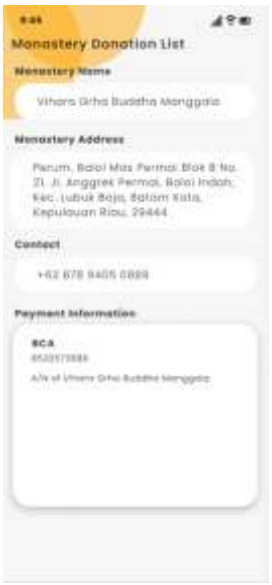

Figure 17. Monastery Content Display

Figure 19. Add New Donation Display

Table 4. Account Feature

No	Name	Feature
1	Account	1. My Profile Menu 2. Feedback Menu 3. About Menu 4. Logout Menu

Figure 20. Account Display

CONCLUSION

Based on the results of the design of a E-Paritta mobile application system from the concept phase to implementation, it can be concluded that using SDLC method makes it easier to design and develop applications on time and on budget, allowing the development time efficiency timeline to be met. Furthermore, Buddhist people may simply get access to the Parrita and donation log by depending on the application while doing related activities.

LIMITATION

This study is intended to contribute to future research in the field of technological development in general. The development of this E-Paritta mobile application still has several flaws, prompting recommendations for further research, such as integrating payment API with donation and geolocation feature with the available monastary so the Buddhist people can easily do donation without going to monastery. It is hoped that future study on the E-Paritta mobile application system will have a broader and larger scope.

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