e-ISSN: 2614-8404
p-ISSN: 2776-3234

Design Of Android Base School Information Media Application Case Study Of Qomariah Educational Institution

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Abstract - Currently the world of technology and information is developing very quickly, including school information systems. The school information system is one of the information media that can be accessed by all elements of the school including teachers and students so that they can relate to each other in terms of teaching and learning activities and information that can be quickly disseminated to all students, so that students do not need to come to school. in this technological era from young to old all use smartphones to facilitate communication but PKBM Qomariah does not yet have the right information media. So an Android-based school information system application was made using Android studio. Android applications make it easier for teachers and students because they can be accessed on various smartphones. All teachers and students mostly have smartphones. With this application, teachers and students can get information from schools easily. The research method used is descriptive method by conducting observations, literature studies, and interviews. While the method used in making software is waterfall which consists of several stages, namely requirements definition, system and software design, implementation and unit testing, system integration and testing, Operation and Maintenance.

Keywords - information system, android studio, smartphone, descriptive method, waterfall

I. INTRODUCTION

The development of information technology is currently developing in all fields, especially in the field of education. Many difficulties or problems can be facilitated or overcome by the role of information technology. Such as data storage, word processing, data processing, finance, information management, and so on. One of the developing technologies is Mobile Application. [7] Mobile Application is software that runs on mobile devices used for mobile services. [3] Where currently many people are users of an android application. [8] As the world of information and communication technology develops, android is increasingly recognized by many people, including in the world of education.[13] An educational institution will need information that is not only timely, but also correct and accurate information. [10] The need for information media dissemination facilities that are fast and easy is increasing, especially in android applications. [8] The Community Learning Activity Center (PKBM) is a place to complete non-formal schooling that does not pass formal education. This non-formal education is intended for students from disadvantaged communities, not in school, dropping out of school and dropping out of further education, as well as productive age who want to improve their knowledge and life skills. [6] PKBM qomariah is one of the community learning activity centers in bandung district. So far, the school has had a website but it is still less than optimal. [5] The lack of information is a contributing factor to the small number of learners.

Based on the above background, the author makes android-based school information media. Android is an operating system developed by Google and designed specifically for touchscreen devices such as smartphones and tablet computers. Android is open source which means it allows anyone to change the code and distribute the software under a license from Google. [1] Android is developed using the Java language with a Software Development Kit (SDK) that provides an effective and efficient Application Programming Interface (API). [2] Application Programming Interface (API) is an interface built by system developers so that some or all of the system's functions can be accessed programmatically. [11] APIs are also commonly thought of as a collection of clear techniques for creating communication between different software components. [11] System design using the *Unified*

e-ISSN: 2614-8404
p-ISSN: 2776-3234

Modelling Languange (UML) is an industry standard language for specifying, visualizing, constructing, and documenting the artifacts of object-based software systems. [12] The test used is BlackBox testing is a software testing technique that focuses on the functional specifications of the software. [15] The blackbox testing method is one method that is easy to use because it only requires the lower limit and upper limit of the expected data.[9] The development stage used is waterfall. The waterfall model is the most frequently used software development model.[14] This development model is linear from the initial stage of system development, namely the planning stage to the final stage of system development, namely the maintenance stage. The next stage will not be implemented before the previous stage is completed and cannot return or repeat to the previous stage. [14] In this study, the authors started the data requirement stage through observation, design, implementation, integration, and operation. [4] The result of the research is an android-based school information media application.

II. RESEARCH METHODOLOGY

This study is about the application of school information media using the experiment method. This study has the aim of improving information media at PKBM Qomariah. The steps of this research are:

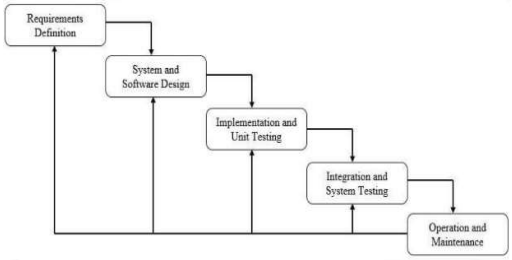

Figure 1. Research steps

A. Requirements Definition

At this stage, researchers communicate with PKBM Qomariah which aims to understand the limitations and expectations of the application to be made, information obtained using interviews, discussions and direct surveys. information is analyzed to obtain the required data.

B. System And Software Design

At this stage of application design, researchers design systems using the *Unified Modeling Languange* (UML) in the form of use case diagrams .

C. Implementation And Unit Testing

At this stage, researchers implement the source code and design of the Android programming language in designing the School Information Media application.

D. Intergration And System Testing

At this stage the researcher makes the application and coding, this application is tested which aims to find out whether the application from this system design is ready for use.

E. Operation And Maintenance

After this application is used and implemented, researchers perform regular maintenance in managing the application so that the application will continue to run according to its function.

III. RESULTS AND DISCUSSION

The result of this study include :

A. Requirements Definition

The current system is that students or visitors who want to get information must come to the school and communicate with PKBM Qomariah.

B. System And Software Design

In designing this application using use case diagrams and class diagrams.

Use case Application Diagram

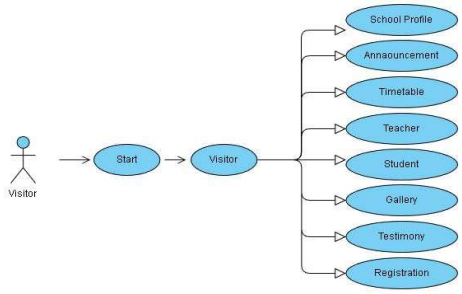

Figure 2. Use case diagram visitor

In this use case of actors using this application. visitors only need to select the selected target image and the android will display related information.

e-ISSN: 2614-8404
p-ISSN: 2776-3234

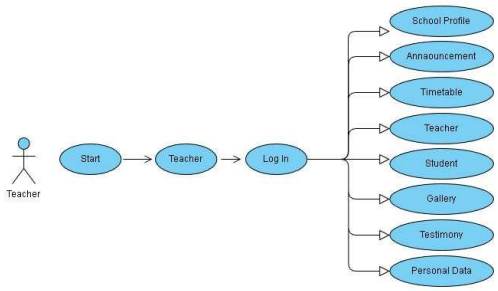

Figure 3. Use case diagram teacher

In the use case of actors using this application. teachers need to use an account to enter the application, after that they only need to select the selected target image and the android will display related information.

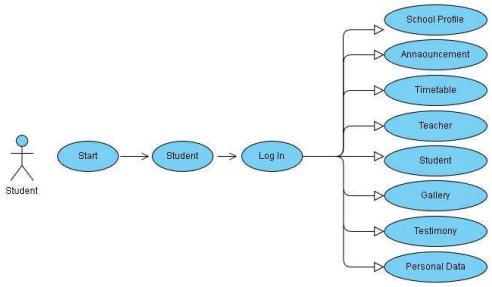

Figure 4. Use case diagram Student

In the use case of actors using this application. students need to use an account to enter the application, after that they only need to select the selected target image and the android will display related information.

C. Implementation And Unit Testing

This stage is the implementation of the system which is the result of the design in the form of an application.

Application View

1. Main menu

Figure 5. Main menu

Main menu view to select as visitor, student, or teacher.

2. Visitor menu

Figure 6. Visitor menu

View the visitor menu to select some of the available submenus.

3. Login menu

Figure 7. Login menu

Login view for those who have access including teachers and students

4. Student menu

Figure 8. Student menu

View the student menu to select some of the available submenus.

5. Teacher menu

Figure 9. Teacher menu

e-ISSN: 2614-8404
p-ISSN: 2776-3234

View the teacher menu to select some of the available submenus.

6. School profile

Figure 10. School profile

A page that displays the school profile.

Figure 11. Announcement

A page that displays existing announcements.

7. Timetable

Figure 12. Timetable

A page that displays the existing schedule.

8. Teacher data

Figure 13. Teacher data

A page that displays a list of registered teachers.

9. Student data

Figure 14. Student data

A page that displays a list of registered students.

10. Gallery

Figure 15. Gallery

A page that displays a gellery of school activities.

11. Testimony

Figure 16. Testimony

A page that displays testimonials who have graduated from school.

12. Personal data

e-ISSN: 2614-8404
p-ISSN: 2776-3234

Figure 17. Personal data

A page that displays personal data that has access.

13. Upload gallery

Figure 18. Upload gallery

A page to upload photos to the gallery available on the gallery submenu page on the teacher menu.

14. Add, update, delete Announcement

Figure 19. Add, update, delete Announcement

A pages to add, update, delete existing announcements.

15. Add, update, delete Timetable

Figure 20. Add, update, delete Timetable

A pages to add, update, delete existing timetable.

16. Add, update, delete Teacher data

Figure 21. Add, update, delete Teacher data

A pages to add, update, delete, registered teacher data.

17. Add, update, delete Student data

Figure 22. Add, update, delete Student data

A pages to add, update, delete, registered student data.

18. Add, update, delete Testimony

Figure 23. Add, update, delete Testimony

A pages to add, update, delete, existing testimonies.

D. Intergration And System Testing

At this stage the researcher conducts a trial which aims to determine whether the application of this system design is ready for use, among others, by distributing questionnaires to teacher and student respondents.

Table 1. Visitor page testing

e-ISSN: 2614-8404
p-ISSN: 2776-3234

No	***Category***	***Test name***	***Results***
1	Main menu	Main menu display	Fine
2	Visitor menu	Visitor menu display	Fine
3	School profile sub menu	School profile display	Fine
4	Announcement sub menu	See announcement list	Fine
5	Timetable sub menu	See timetable list	Fine
6	Teacher data sub menu	See Teacher name	Fine
7	Student data	See students name	Fine
8	Gallery	See gallery	Fine
9	Testimony	See Testimony list	Fine
10	Registration	See registration	Fine

Table 2. Student page testing

No	***Category***	***Test name***	***Results***
1	Main menu	Main menu display	Fine
2	Student menu	Student menu display	Fine
3	School profile sub menu	School profile display	Fine
4	Announcement sub menu	See announcement list	Fine
5	Timetable sub menu	See timetable list	Fine
6	Teacher data sub menu	See Teacher name	Fine
7	Student data	See students name	Fine
8	Gallery	See gallery	Fine
9	Testimony	See Testimony list	Fine

Table 3. Teacher page testing

No	***Category***	***Test name***	***Results***
1	Main menu	Main menu display	Fine
2	Teacher menu	Teacher menu display	Fine
3	School profile sub menu	School profile display	Fine
4	Announcement sub menu	See announcement list	Fine
5	Add announcement	Add announcement	Fine
6	Update announcement	Update announcement	Fine
7	Delete announcement	Delete announcement	Fine
8	Timetable sub menu	See timetable list	Fine
9	Add timetable	Add timetable	Fine
10	Update timetable	Update timetable	Fine
11	Delete timetable	Delete timetable	Fine
12	Teacher data sub menu	See Teacher name	Fine
13	Add teacher	Add teacher	Fine
14	Update teacher	Update teacher	Fine
15	Delete teacher	Delete teacher	Fine
16	Student data sub menu	See students name	Fine
17	Add student	Add student	Fine
18	Update student	Update student	Fine
19	Delete student	Delete student	Fine
20	Gallery sub menu	See gallery	Fine
21	Upload photos for gallery	Upload a photo	Fine
22	Testimony sub menu	See Testimony list	Fine
23	Add testimony	Add testimony	Fine
24	Update testimony	Update testimony	Fine
24	Delete testimony	Delete testimony	Fine

So it can be concluded based on the results respondents through the assessment of this application is very good.

E. Operation And Maintenance

At this stage, researchers perform regular maintenance in managing the application so that the application continues to run according to its function and can be developed further. based on the table above This application is still in the development stage including correcting errors that were not found in the previous step and is expected to help, facilitate and improve school information services.

IV. CONCLUSION

based on the results of research conducted regarding Design Of Android Base School Information Media Application Case Study Of Qomariah Educational Institution it can be concluded that backbox testing shows that this application can run well.

e-ISSN: 2614-8404
p-ISSN: 2776-3234

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