WEB-BASED ARCHIVES MANAGEMENT INFORMATION SYSTEM USING RAPID APLICATION DEVELOPMENT METHOD AT IMM FT UMJ

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ABSTRACT

The archive management implemented by Ikatan Mahasiswa Muhammadiyah Fakultas Teknik Universitas Muhammadiyah Jakarta (IMM FT UMJ) is still semi-computerized, where computers are only used for the administrative process of creating documents such as letters, proposals and preparing reports, while all these documents will become archives that will be needed for carrying out other activities. The existing archives contain all information regarding activities carried out by IMM FT UMJ, which functions as valid evidence of actions and decisions or as a basis for carrying out activities. Archives stored on computer storage media have weaknesses from an operational perspective when the archives are needed again by IMM FT UMJ members, because only the general secretary can access these archives and they can be accessed offline via general secretary computers.

The aim of this research is to produce alternative solutions by creating a web-based archive management information system that can be accessed by IMM FT UMJ members online and makes it easier to search for archives. Data collection methods in this research consist of literature study, observation, and interviews. Application development uses the Rapid Application Development (RAD) method which focuses on speed in system development to meet user needs without reducing system quality, where in making this application there is an iterative process that involves feedback from users. Based on the results of application testing carried out using the black box testing method, it can be concluded that this information system can make it easier to manage archives for the general secretary as well as for the need to access archives for members.

Keywords: archives, documents, iterative process, information systems

1. Introduction

Administration is a routine operational activity carried out by each part of an organization. As was done by the Ikatan Mahasiswa Muhammadiyah Fakultas Teknik Universitas Muhammadiyah Jakarta (IMM FT UMJ). Every time an activity is carried out, every part of the IMM FT UMJ organization needs to carry out an administrative process by creating documents such as correspondence, proposals, and accountability reports regarding information on activities that have been carried out. This is done to manage all information regarding activities carried out into archives that function as valid evidence for actions and decisions. Because for an organization, archives are the basis for carrying out operational activities. Therefore, to be able to present information more completely, quickly and precisely, good work systems and procedures are needed in managing records.

However, the archive management currently implemented in the IMM FT UMJ organization is still semi-computerized, so many archives are not properly documented. For example, recording data on incoming or outgoing letters is done manually using a word processing application such as Microsoft Excel. Then, accessing the archives is quite complicated and takes a lot of time because the storage media is stored in the General Secretary's personal computer folder, so when you want to access it you have to contact and confirm the General Secretary first. Of course, managing archives like this will take a lot of time because the archives managed will always increase, so that retrieving archival documents takes a long time and distributing documents between parts of the organization becomes less effective.

Therefore, an alternative solution is needed in archive management which must be

implemented at IMM FT UMJ, namely computerized (digital) archive management. As research conducted by (Wibowo & Christiani, 2018) suggests that digital archives play a role as the main source of information and apart from that, users can access archived information sources anywhere and at any time, thus ensuring that all archive data is stored properly, without worrying about it being damaged or lost.

To overcome this problem, an alternative solution is needed that can overcome problems in archive management by creating a web-based information system that can be used to manage archives in a computerized (digital) manner so that archives at IMM FT UMJ can be managed well and are easy to find.

2. Material and Methods

2.1 Archives

Archive in Greek comes from the word arche, then changed to archea, changed back to archeon. Archea means documents or notes regarding problems. [1]

Then, according to [2] who also said that archives in Dutch are known as archief, in England they are known as archives and in America they are known as records and archives which means written records that are kept.

It can be concluded from several terms and definitions above regarding archives, archives are records of activities in the form of documents which are intended as a memory center or source of information and as a monitoring tool that is very necessary for every organization in every activity carried out. In an organization, the existence of archives is very helpful in carrying out activities such as planning, formulating policies, making decisions, preparing reports, and preparing accountability reports.

2.2 Digital Archives

"Digital archives are archives that can stored and transmitted in discontinuous form or in the form of binary codes that can be opened, created, or deleted by computing devices that can read or process data in binary form, so that the archive can be reused."[2]

Digital archives have both advantages and disadvantages. Advantages of digital archives are:

1. There is a copy of the archive in electronic form
2. Guaranteed recording of the information contained in the archive
3. Easy to access again
4. Faster in serving again
5. Security is guaranteed from access by unauthorized parties
6. As a back up of important archives.

Meanwhile, the weaknesses of digital archives are:

1. There is a possibility that the archive was manipulated in some way
2. Difficulty sharing files due to the file format or network availability or access to share files with others
3. The possibility of file damage at any time, without any prior warning, for example by a virus or data being permanently deleted by accident. [3]

2.3 Information Systems

According to [4] in their book entitled Introduction to Information Systems stated that: "Information systems in an organization
can be said to be a system that provides information to all levels in the organization whenever needed." This system can store, retrieve, change, process and communicate information received using information systems or other equipment.

2.4 Rapid Application Development Method (RAD)

According to McLeod and Schell in [5] explain that Rapid Application Development is a method that focuses on speed in system development to meet user needs.
RAD emphasizes short and rapid development cycles. Short time is the main limitation of this model. Then in the development process, there is an iterative phase in developing the system where the system working model is constructed at the beginning of the development stage with the aim of determining user needs.

The design cycle flow used is faster and produces much better and more effective quality compared to the results achieved in traditional cycles. [6]

3. Results and Discussions

3.1 Research Methodology

The research methodology carried out in this research consists of the following data collection and system development methods:

A. Data Collection

The data collection techniques used consisted of literature study, observation and interviews. The data that researchers collected was secondary data originating from the results of literature studies regarding the concept of archive management, the differences between conventional archives and archives digital, the flow of information system design related to archive management, as well as the theories needed during research.

Observation activities carried out direct observations related to activities and business processes in managing archives in Ikatan Mahasiswa Muhammadiyah Fakultas Teknik Universitas Muhammadiyah Jakarta (IMM FT UMJ).

Primary data was obtained by conducting interviews with the General Secretary. The data that researchers managed to collect is regarding the procedures currently implemented by the General Secretary to manage archives at IMM FT UMJ, and the obstacles that occur when managing archives.

B. System Development

The method used is the rapid application development (RAD) method. The initial stage in creating this application is preparing the required data starting from requirements planning, design, development, testing and implementation. Requirements planning must proceed in accordance with the objectives to be achieved, namely the management of archives that can be managed well and can be easily found again at any time required.

Source : (Irnawati dan Listianti, 2018)
Figure 3.1 RAD Method

3.2 Requirements Planning Stage

At this stage, planning is carried out regarding user needs and the need for developing an archives management information system to determine the final goal of the system needed to solve archives management problems in IMM FT UMJ.
Requirements planning is carried out based on the processes in the current system as well as the obstacles that are often experienced by system actors. Feedback from system actors will later be used as a reference for determining the functional requirements of the system to be developed.

3.3 Design Stage

Design stage in the RAD method carried out iteratively as follows:

Source : (Irnawati dan Listianti, 2018)
Figure 3.2 RAD Method Cycle

The design stage in the Rapid Application Development method consists of 3 phases carried out iteratively, the stages are:

a. Design phase

In this phase, the system design in which it is carried out is carried out system modeling using use case diagrams, Hierarchical Input Process Output (HIPO) Diagram and user interface design.

b. Presentation to users

After the system design is complete, the next step is: make presentations to users to show the results of plans that have been made from problems and constraints experienced in managing archives in the IMM FT UMJ.

c. User feedback

In this phase the user will provide feedback on their assessment of the system design that has been presented. Feedback from users will be used as a reference for improving functional requirements on the system being developed. After receiving feedback from user then the process will return to the requirements planning stage

3.3.1 RAD First Iteration Stage

Modeling design phase using the use case diagram in the digital archive management information system, there are 3 (three) actors in the proposed system use case: Admin, General Secretary, and Members.
Each actor has different access rights and is required to log in to the system if they want to access the available features. use case diagram in the following image:

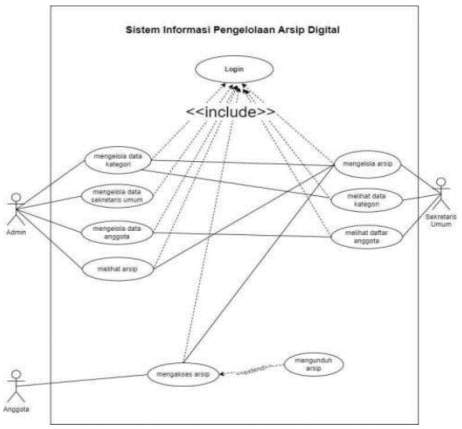

Figure 3.3 Use case diagram of proposed system

The following is the Hierarchical Input Process Output (HIPO) diagram Archives Management Information System, which can be seen in the following image:

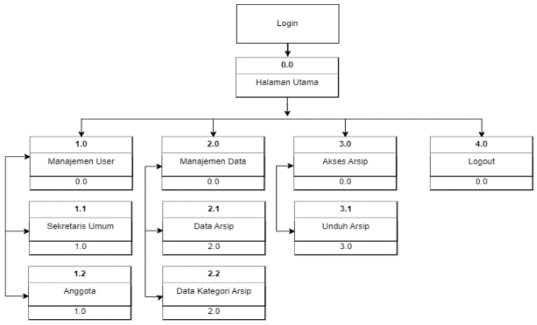

Figure 3.4 HIPO Digital Archives Management Information System

After the design phase, the next step is to make a presentation to the user in the form of a draft user interface design so that the user can assess everything from the display design to the menu functions of the system to be developed. The following is a user interface design:

Admin actor dashboard display design, there are menu functions: Archive Category Data, General Secretary Data, Member Data, Archive Data and Change Password. The interface design image is as follows:

Figure 3.5 Admin Dashboard Page Display Design

General secretary actor interface design, there are menu functions: Archive Data, Archive Category Data, Member Data and change password. The interface design image is as follows:

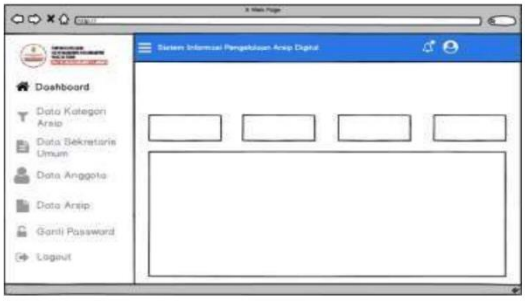

Figure 3.6 General Secretary Dashboard Page Display Design

Member actor dashboard display design, there are menu functions: Archive Data and Change Password. The interface design image is as follows:

Figure 3.7 Member Dashboard Page Display Design

After the presentation of the system design, there was feedback in the form of adding functions to the admin dashboard and general secretary which could record the history of downloads made by members, so that they could control member activities in accessing archives in the information system.

3.3.2 RAD Second Iteration Stage

At this stage, all design stages are carried out again as in the first RAD stage. use case modeling includes the addition of a download history function, as follows:

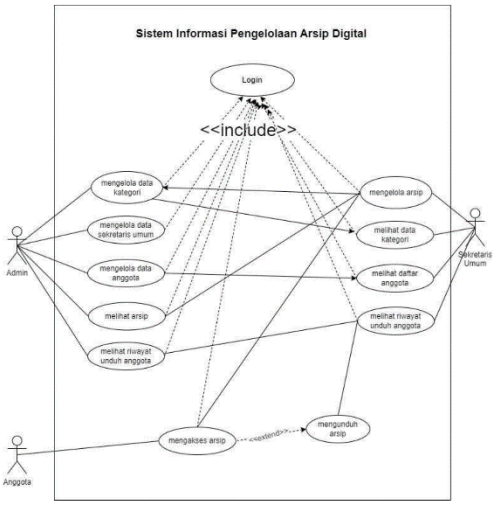

Figure 3.8 Use case diagram of second iteration stage

The following is the Hierarchical Input Process Output (HIPO) diagram Archives Management Information System in second iteration stage, which can be seen in the following image:

3.11Figure 3.9 HIPO Digital Archives Management Information System in second iteration stage

Presentation of the interface design in this second iteration, with the addition of the download history menu function on the admin dashboard and general secretary dashboard, with the display design in the following image:

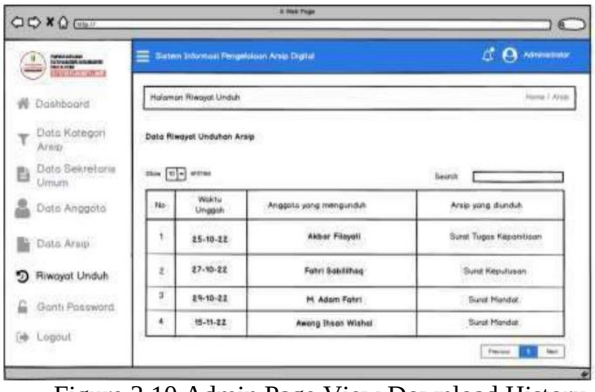

Figure 3.10 Admin Page View Download History Menu

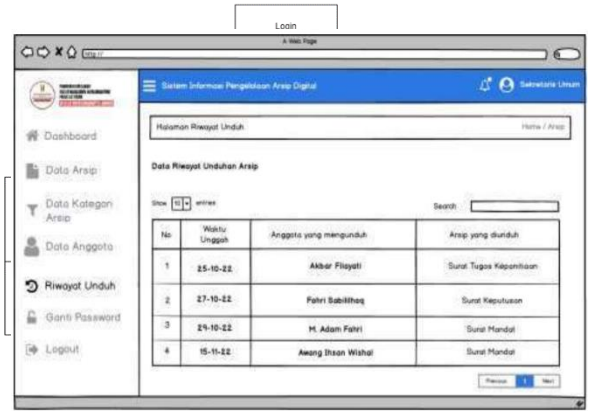

Figure 3.11 General Secretary Page View Download History Menu

After presenting the design that had been created, the result was that the user agreed and there was no further feedback. The next stages are coding, testing and implementation.

3.4 Coding Stages

Coding in creating this archival information system uses the PHP and MySQL programming languages as well as PHP MyAdmin to manage the server database

3.5. Testing Phase

The testing process is carried out to detect errors in the system using the black box testing method which focuses on the functionality, especially on the input and output features in the system to ensure conformity with the expected results.

3.6 Implementation Stage

After all stages of system development have been successfully completed, archive management at IMM FT UMJ can use this information system.

The following displays several forms created in the archive management information system:

a. Admin dashboard

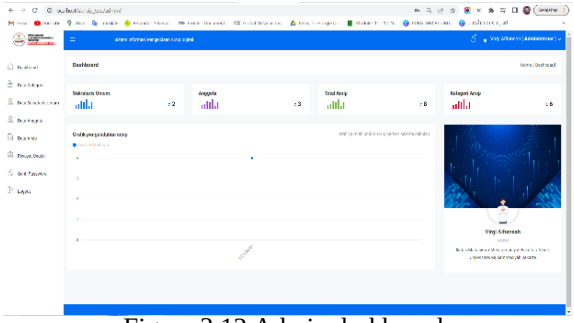

Figure 3.12 Admin dashboard

Figure 3.12 shows that the admin dashboard has a function to manage user management data, manage archive category data, view archive data uploaded by the general secretary, and view download history archives carried out by members.

b. General secretary dashboard

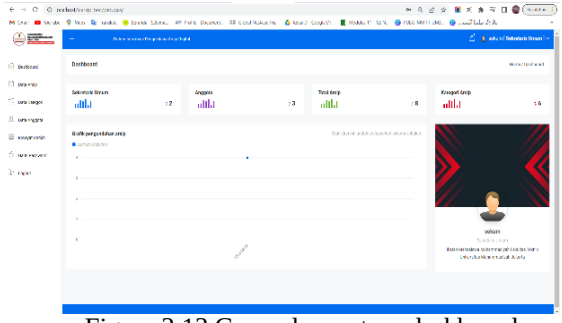

Figure 3.13 General secretary dashboard

Figure 3.13 shows the general secretary dashboard which has the function of managing organizational archive data, viewing member data and the history of archive downloads made by members.

c. General secretary dashboard archive data menu

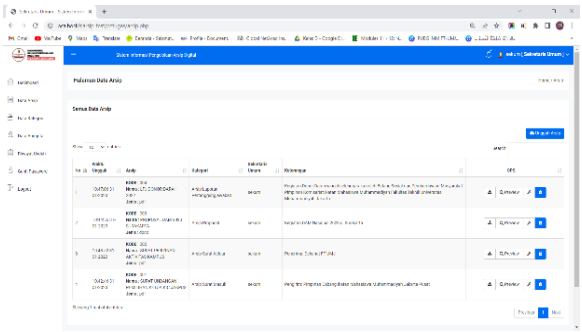

Figure 3.14 General secretary dashboard archive data menu

Figure 3.14 shows the general secretary's dashboard in the archive data menu, which is the main function for managing archives in the IMM FT UMJ organization. On the menu archive data, the general secretary can upload, edit and delete archive data.

d. Member dashboard

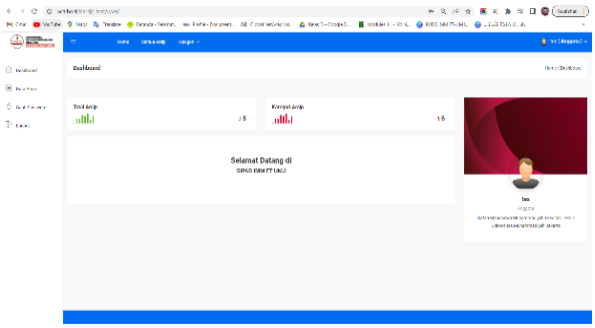

Figure 3.15 Member dashboard

Figure 3.15 shows the member dashboard which has the function of accessing archival data that has been uploaded by the general secretary into the information system.

e. Archive data menu member dashboard

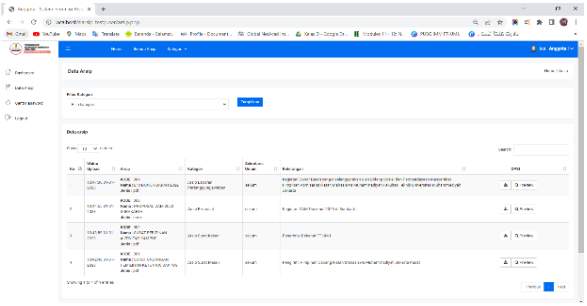

Figure 3.16 Archive data menu member dashboard

Figure 3.16 shows the member dashboard in the archive data menu, which is a function for accessing and downloading the required archive data. In this menu, members can search for archive data easily using the search feature by inputting text that matches the required archive identity.

Based on the implementation results has been carried out, starting from the process of managing archive categories, managing organizational archive data, re-searching the required archive data, managing user access rights, downloading the required archives and viewing the history of download activity, all can be done through the information system management of this archive.

Accessing archives by members can be done if the member first has an account to be able to enter the system in order to access and download the required archives. Every archive download activity carried out by members will always be recorded by the system and a download notification message will appear on the admin and general secretary dashboards and

details of the activity can be seen in the download history menu on the admin and general secretary dashboards.

The archive management process in this digital archive information system basically has almost the same stages. The difference is at the stage when members want to access the archives, using the archives management information system, without having to contact and wait for the general secretary first. Members can access and download archives at any time on the system that has been created simply by logging in to the system using the account that was previously registered by the admin.

Below is a comparison table between the archive management systems in the IMM FT UMJ organization before using this web-based archive management information system:

Table 3.1: Important dates

No.	Need	Difference	
		Before	After
1	Who can access archives	Only the general secretary	Every user who has registered in the information system
2	Members who want to access the required archives	Must meet or contact general secretary first	Can directly access it via information system
3	Want to know what archives there are downloaded by members	Can't	Can be seen via the archive download history menu
4	Archives are accessed simultaneously	You can't, because the only person who can access the archives is the general secretary	Can be accessed simultaneously via information Systems
5	Time Search for required archives	Takes a long time	Can be done quickly with search feature

4. Conclusion

Based on the results of the discussion in this research, the following conclusions can be drawn:

1. Better archive management through a computerized system, where every archive uploaded into the system will be stored neatly according to the reason or category and there is no longer a need to collect archive data manually using Microsoft Excel.

2. Accessing archives is now easier and can be done at any time, so there is no need to contact and confirm the general secretary first because you can directly access it through the system.

3. Archives become easier to find again by providing a search feature to search for archives by inputting text directly that matches the identity of the archive.

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