International Journal of Computer and Information System (IJCIS)
Peer Reviewed – International Journal
Vol : Vol. 03, Issue 04, December 2022
e-ISSN : 2745-9659
https://ijcis.net/index.php/ijcis/index

Mail Management Information System on The Institute of Research and Community Services of Islamic State University (LP2M UIN) Salatiga

[1st]Ahmad Rois Syujak
[1]Islamic Communication and Broadcasting Study Program of Da'wah Faculty
Islamic State University (UIN) Salatiga
City of Salatiga, Central Java
[1]ahmad.rois.syujak@iainsalatiga.ac.id

Abstract*— Lecturers who apply for letters related to research and service to the community often have difficulty filing letters and take a long time. This is because the institute of research and community services of Islamic State University (LP2M UIN) Salatiga does not have a system to manage mail messages that are systematized and can be accessed quickly. The need to find a way to solve existing problems by providing a mail management information system (ESurat) program that can be used to handle the writing letter process carried out by lecturers. The Web-based mail management information system (ESurat) is a way to handle letter submissions by professors so that professors can obtain mail faster and be developed using waterfall methods. Using PHP programming languages, MySQL databases and CodeIgniter frameworks in the construction of a web-based mail management information system (ESurat). The research results that the application can be used to handle the letter submission process carried out by UIN Salatiga lecturers managed by the institute of research and community services of State Islamic University (LP2M UIN) Salatiga.

Keywords : *information system, mail management, web-based*

I. INTRODUCTION

Today, information technology has grown rapidly and has undergone changes that have quickly proven new discoveries with the aim of improving or perfecting previous technology results. This causes dependence on technology, ranging from education, business, transportation, and even the recreational process. One of the causes is the high need for technology today. In many aspects of today's work it has become natural for a person to utilize information technology aimed at helping to accomplish his work effectively and efficiently[1]. In the education world, information technology is very helpful in the service of a large number of universities in a short period of time, for example, the service of the the institute of research and community services of Islamic State University (LP2M UIN) Salatiga for lecturers.

In the service of creating correspondence letters related to research and devotion to the community at the Salatiga LP2M UIN are currently still running manually, which is centralized to admins either coming directly to the office or via Whatsapp messages. The process resulted in the delivery of mail taking longer, so there needed to be a breakthrough that could speed up the service process.

Technology development and the presence of adequate facilities including computers, laptops and gadgets are very possible to simplify and speed up the process. The need to handle such processes can be replaced in a system that is more accessible whenever and wherever. [2]–[5] Therefore, a Mail Management Information System (ESurat) is required for lecturers who can make it easier and speed up the process of producing letters at LP2M UIN Salatiga and of course have an impact on the process of implementing college tridharma.

II. RESEARCH METHOD

In the creation of the Mail Management Information System (ESurat) at LP2M UIN Salatiga using the Waterfall research method [6], the Waterfall method is serialized starting from the process of planning, analysis, design, and implementation of the system. This method is done using a systematic approach, starting from the system requirements stage and going to the analysis, design, coding, testing/verification, and maintenance stages. Step by step must be completed one at a time (cannot jump to the next step) and run in sequence, and the following steps must be completed one at a time (cannot jump to the next step) and run in sequence, and Using PHP programming languages, MySQL databases and CodeIgniter frameworks in the construction of a web-based mail management information system (ESurat).

2.1. Analysis and Data Collection

Analysing the problems that occur by conducting direct observation on research institutions and community service (LP2M) when lecturers make

letters to LP2M. Data collection is done through interviews [7] and doing library studies, interviews are conducted with lecturer informants at UIN Salatiga and also education administrators/ student at LP2M UIN Salatiga. Meanwhile, library studies were conducted by looking at previous studies related to the mail management information system.

2.2. Design

After performing data collection, the data that has been used can be used to design the system. These include database design [8] and interface design for both admin and lecturer. This stage of design can be done when it has finished analyzing all system requirements in the previous stage.

2.3. Implementation

The implementation is to write program code or start creating a system. At this stage, the construction of an application can be done based on the blueprint. Implementation is done from the beginning to the application ready to run both from management functions and for users (lecture).

2.4. Testing

Attempts are made after the application build is complete. Attempts are made to ensure the application is free of bugs and errors and also the application can run as it functions. Applications are tested using black box testing [9] to ensure all functions are running as they should and according to the requirements already designed.

III. RESULT AND ANALYSIS

3.1 Services Process

In the Mail Management Information System (ESurat) LP2M UIN Salatiga, the process started from the admin or officer adding lecturer/ employee data and the type of mail that can be accessed by the lecturer. Then lecturers who have not been able to access the system can go to admins or officers for data input. Furthermore, the lecturer can enter NIP, then the lecturer fills out the form which will then be printed on the letter according to what has been completed. Furthermore, the admin or officer will process the mail submission by validating the data submitted by the lecturer. Next the leader passed the letter. The process is complete, the lecturer will receive a notification via Whatsapp and Email containing information that the letter has been completed, then the lecturer can confirm that he will take a letter to LP2M or mail sent in the form of a sotfile via registered email.

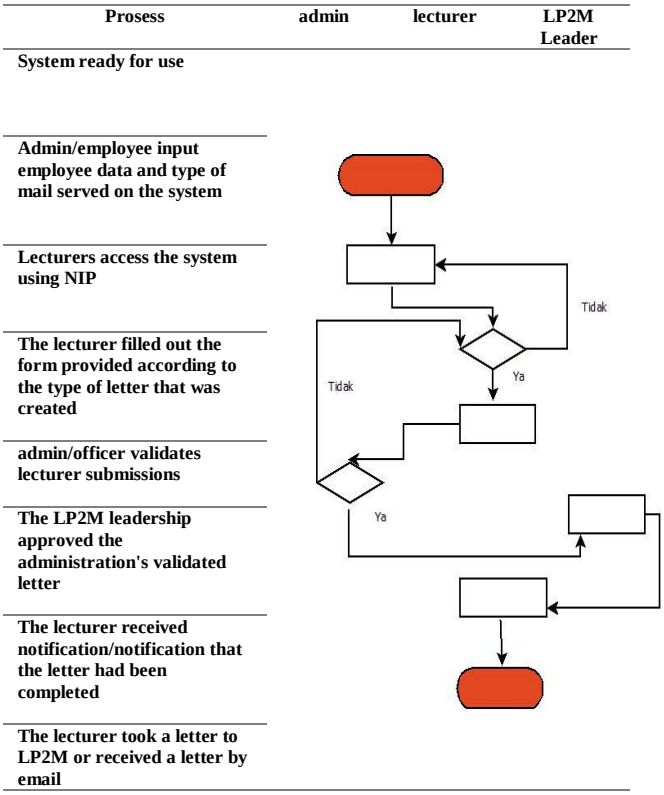

Figure 1. System process flow

3.2 Fungtional Requirement

Table 1. Fungtional Requirement

FR	Function	User
E01	Accept login	Admin/officer, lecturer, leader
E02	Add new users (admin, lecturer, leader)	Admin/officer
E03	Edit user (admin, lecturer, leader)Listen	Admin/officer
E04	Deleting user (admin, lecturer, leader)	Admin/officer
E05	Display user list (admin, lecturer, leader)	Admin/officer
E06	Display user details (admin, lecturer, leader)	Admin/officer
E07	Adding mail type data	Admin/officer
E08	Editing mail type data	Admin/officer
E09	Delete mail type data	Admin/officer
E10	Delete mail type data	Admin/officer
E11	Show a list of mail types data	Admin/officer
E12	Show mail type data details	Admin/officer
E13	Adding mail forwarding data	Admin/officer, lecturer
E14	Editing mail forwarding data	Admin/officer, lecturer
E15	Delete mail forwarding data	Admin/officer
E16	Display a list of mail forwarding data	Admin/officer
E17	Show mail reply data details	Admin/officer, lecturer, leader
E18	Editing mail forwarding	Admin/officer

	process	
E19	Validating mail submission process	Leadership
E20	Print valid mail in pdf extension	Admin/officer
E21	Doing logout	Admin/officer, lecturer, leader

3.3 *ERD (Entity Relationship Diagram)*

An entity reality diagram [10] is a model for describing relationships between data or tables in a database based on the basic objects of relationships or relationships. In the Mail Management Information System (ESURAT) ERD, the Salatiga LP2M UIN has 7 tables, namely admin, lecturer, leader, mail type, mail admission, progress advance, and validation tables. The faculty table is related to the letter type table with the mant-to-many relation which means that one lecturer can submit multiple letter types and one letter type can be selected by many lecturers, so a new table is formed. The admin table is related to the process advance table with a one-to-many relation, meaning that one admin can process multiple mails and one mail can only be processed by one admin and a new table is formed. And the Leadership Table is correlated with one-to-many relationships, which means that one leader can validate many mail submissions and all mail submissions can only be processed by one leader.

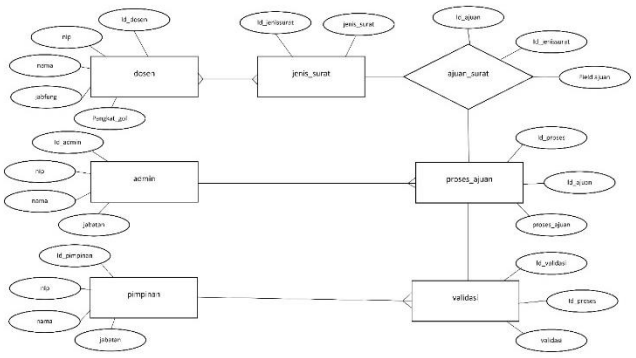

Figure 2. *Entity Relationship Diagram*

3.4 Use Case Diagram

A use case diagram [11] is a graphical representation of the interaction between an actor and a system. Use case Diagrams can provide a brief overview of the functions required in the system. In the case of the Mail Management Information System (ESurat) LP2M UIN Salatiga there are 3 users, namely Admin, Lecturer, Officer, and Leader. There are also 10 use cases, of which there are 2 use case edits which are extensions of detail which means that the system must have a function to display the detail first and a new edit function can be created.

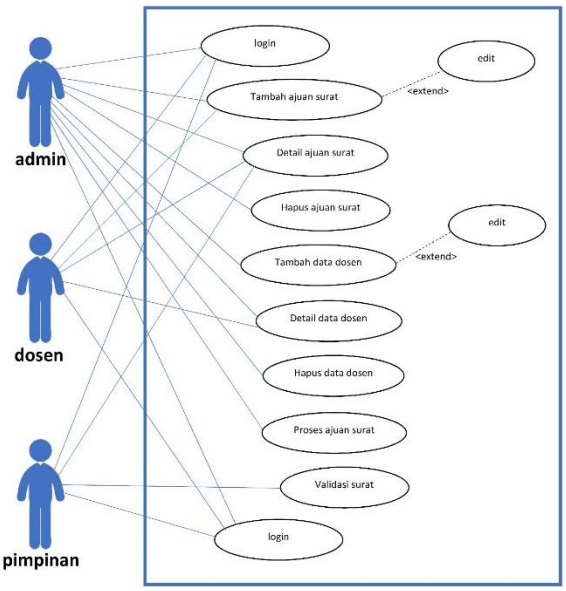

Figure 3. *Use case Diagram*

3.5 Implemention

3.5.1 Admin Page

The Admin view is a custom view for LP2M admins/staffs related to the processing of mail data. This view is accessible to both admin and leader users.

3.5.1.1 Admin Login Page

A login page is a page first accessed by both the admin and the lead user. On this page the user must fill in the username and password form to go to the next page.

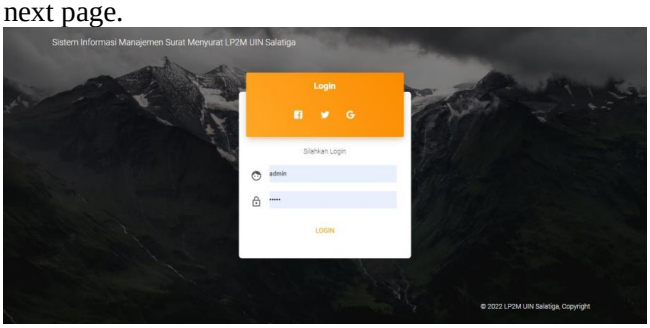

Figure 4. Admin Login Page

3.5.1.2 Dasboard Page

The dashboard page is the initial reference page after login. The dashboard page contains dashboard menus, mail management, lecturer data, lecturer/employee management, and user management. In these menus, display the existing data in the menu.

International Journal of Computer and Information System (IJCIS)
Peer Reviewed – International Journal
Vol : Vol. 03, Issue 04, December 2022
e-ISSN : 2745-9659
https://ijcis.net/index.php/ijcis/index

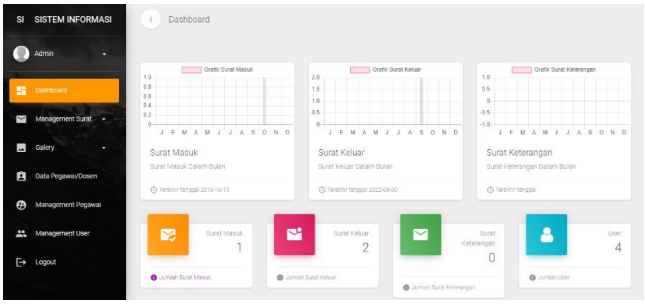

Figure 5. Dasboard Page

3.5.1.3 Mail Forwarding Data Page

A list of data pages is a reference page after a menu from side navigation on a mail management menu. This page lists mail forwarding data with common attributes and tools or actions that can be performed on selected data such as displaying details, edits, deletions and mail state validation processes.

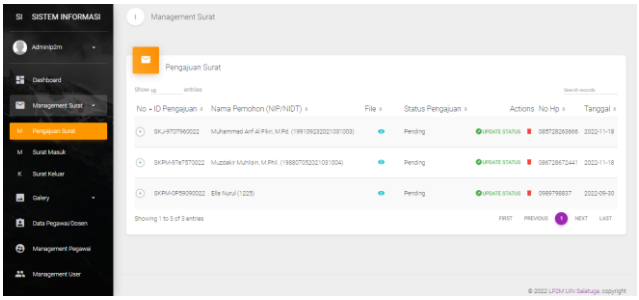

Figure 6. Mail forwarding data page

3.5.1.4 Page Add Mail Forwarding Data

This page displays the form for mail data input.

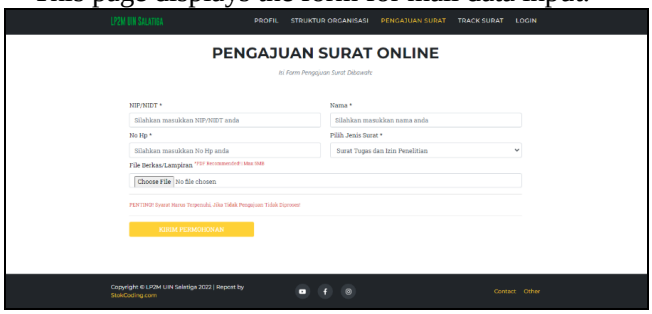

Figure 7. Page Add Mail Forwarding Data

3.5.1.5 Update Status and Mail Forwarding Validation Page

This page is an advanced page when the mail processing is performed on this information system via the mail management menu → mail submission. On this page the admin can perform a mail state update (requirements are not met, accepted and continued or mail is pre-installed and mail can update mail validation status.

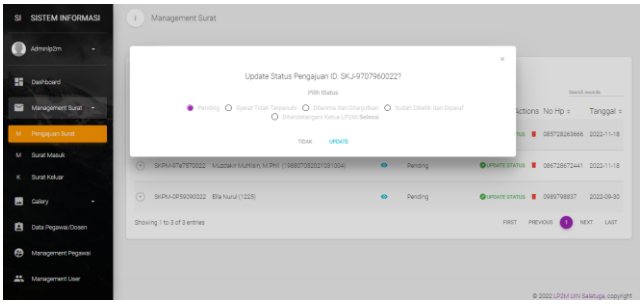

Figure 8. Mail validation page

3.5.1.6 Page Valid Mail Data

An outgoing mail page is a page that lists mail forwarding data that has been validated by the leader.

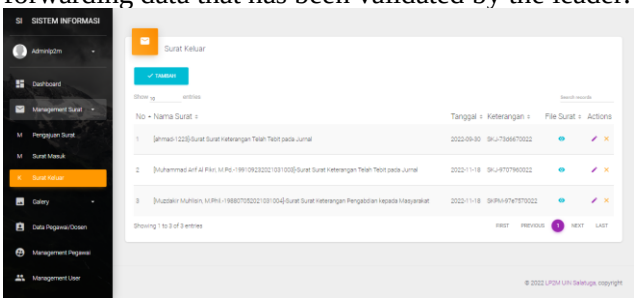

Figure 9. Mail data page is valid

3.5.2 User Page

3.5.2.1 Home Page

The Home page is the initial reference page for the lecturer before applying for a letter. On the home page there are profiles, mail submissions, mail tracking, and login menus.

Figure 10. Home page

3.5.2.2 Mail Forwarding Form Page

This page is a letter submission page containing the application form that must be completed by the lecturer.

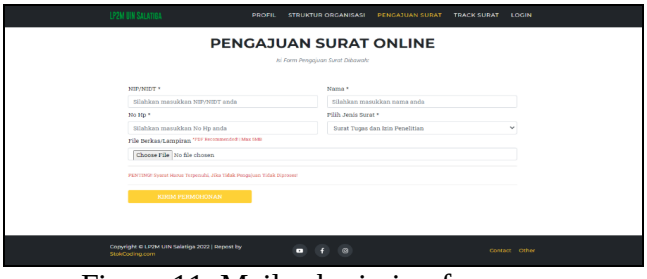

Figure 11. Mail submission form page

3.5.2.3 Mail Search Page

This page is the page that the lecturer uses to find the submitted letter

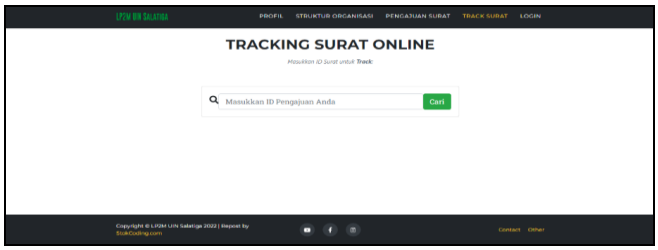

Figure 11. Mail search page

3.5.2.4 Mail Static Page

On this page, the lecturer can know the status of the submitted letter.

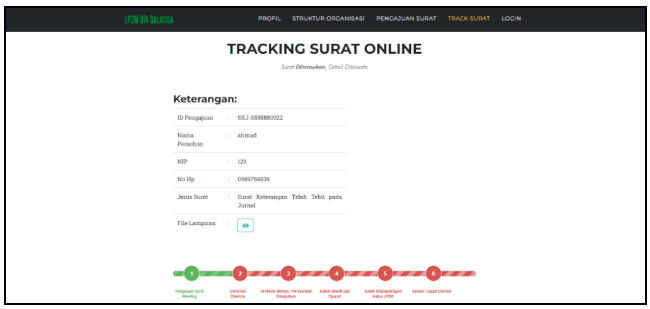

Figure 12. Mail static page

3.6 Testing

Testing on the mail management information system (ESurat) LP2M UIN Salatiga was conducted using black box testing [9]. The results of testing using this method are said to be excellent because it can be known all the weaknesses on the system before use Blackbox testing focuses on performing testing on the functional of the system. The results of the system tests are as follows.

Table 2. Testing by Black Box method

No	Skenario	Harapan	Hasil
1	Empty all fields in login form then press the 'Sign in' key ,	The system refuses to log in to the admin page and a notification appears that the username and password cannot be empty.	Success
2	Fill in the username and empty the password and press the 'Sign in' button	The system refuses to log into the admin page and a notification appears that the password cannot be empty	Success
3	Fill in the username and password and press the 'Sign in' button	System goes to page	Success
4	Blank all fields in add form then press submit key	The system refuses to input and a notification appears that the field cannot be empty.	Success
5	Fill in all fields and press the submit button	The system is jamming the data	Success
6	Empty all fields in the edit form and then press the submit key	The system refuses to input and a notification appears that the field cannot be empty	Success
7	Change all fields and press the submit button	The system is jamming the data.	Success
8	Select reject in delete confirmation column	System does not delete data	Success
9	Select agree in the delete confirmation column	System erases data.	Success
10	Selecting reject in mail process confirmation column	System does not process mail reply changes	Success
11	Select agree in the mail process confirmation column	The system processes mail forwarding changes.	Success

VI. CONCLUSION

From the results of the design and manufacture of the information system above, it can be concluded that it has successfully created the "Mail Management Information System On The Institute Of Research And Community Services Of Islamic State University

(LP2M UIN) Salatiga". Where all the functions of the system can go well. This Information System is used to assist the writing process of letters managed by LP2M UIN Salatiga and also supports lecturers in carrying out Tri Dharma University activities, especially in the field of research and devotion to the community.

THANK-YOU NOTE

This writing is the result of the implementation of the CPNS Basic Training (LATSAR) actualization program for the 2022 Balai Diklat Keagamaan Semarang. Therefore, our gratitude goes to Mentor/Dean of Faculty of Dawah UIN Salatiga Bp. Dr, Mukti Ali, S.Ag., M.Hum, and our Coach/Widyaiswara Mrs. Dra. Hj. Masfifah, M.Pd.

REFERENCES

[1] D. R. Prehanto, *Konsep Sistem Informasi*, Edisi 1. Surabaya: Scopindo Media Pustaka, 2020. [Online]. Available: https://books.google.co.id/books?hl=en&lr=&id=0OriDwAAQBAJ&oi=fnd&pg=PR3&dq=teknologi+informasi+yang+memudahkan&ots=a2iPzuom3O&sig=7oYD790b20J2IK-AdioU_p7b0F8&redir_esc=y#v=onepage&q=teknologi%20informasi%20yang%20memudahkan&f=false

[2] A. Padmanaba, 'KOMPARASI PENGGUNAAN FRAMEWORK CODEIGNITER VS PHP NATIVE PADA SISTEM INFORMASI MANAJEMEN SURAT SEKRETARIAT DPRD PEMALANG', vol. 8, no. 1, p. 6, 2020.

[3] A. Cahyo Nugroho, 'Rancang Bangun Sistem Informasi Manajemen Surat Tugas Berbasis Web Menggunakan Waterfall Model', *jpit*, vol. 4, no. 2, pp. 146–151, May 2019, doi: 10.30591/jpit.v4i2.1382.

[4] J. Sasongko and D. A. Diartono, 'Rancang Bangun Sistem Informasi Manajemen Surat', p. 9, 2009.

[5] A. W. Sudio and Y. Adharani, 'PENGEMBANGAN APLIKASI E-SURAT BERBASIS WEB', p. 7.

[6] J. Yu, 'Research Process on Software Development Model', *IOP Conf. Ser.: Mater. Sci. Eng.*, vol. 394, p. 032045, Aug. 2018, doi: 10.1088/1757-899X/394/3/032045.

[7] F. R. S. Edi, *Teori Wawancara Psikodiagnostik*, Edisi 1. Yogyakarta: Leutikaprio, 2016. [Online]. Available: https://books.google.co.id/books?hl=en&lr=&id=uS96DwAAQBAJ&oi=fnd&pg=PA1&dq=teori+wawancara&ots=zIVeqSy81i&sig=Q41qRS0Hr2Sy3R5iRni_K8G_RaQ&redir_esc=y#v=onepage&q=teori%20wawancara&f=false

[8] M. Data, G. Ramadhan, and K. Amron, 'Analisis Availabilitas dan Reliabilitas Multi-Master Database Server Dengan State Snapshot Transfers (SST) Jenis Rsync Pada MariaDB Galera Cluster', *JTIIK*, vol. 4, no. 1, p. 69, Mar. 2017, doi: 10.25126/jtiik.201741288.

[9] U. Hanifah and R. Alit, 'PENGGUNAAN METODE BLACK BOX PADA PENGUJIAN SISTEM INFORMASI SURAT KELUAR MASUK', p. 8, 2016.

[10] I.-Y. Song, M. Evans, and E. K. Park, 'A Comparative Analysis of Entity-Relationship Diagrams', vol. 3, p. 39, 1995.

[11] N. Ibrahim, R. Ibrahim, M. Z. Saringat, D. Mansor, and T. Herawan, 'Definition of Consistency Rules between UML Use Case and Activity Diagram', in *Ubiquitous Computing and Multimedia Applications*, vol. 151, T. Kim, H. Adeli, R. J. Robles, and M. Balitanas, Eds. Berlin, Heidelberg: Springer Berlin Heidelberg, 2011, pp. 498–508. doi: 10.1007/978-3-642-20998-7_58.