Optimizing Village Administration and Public Information Access through the Implementation of an Electronic Archive System in Desa Marga Mukti

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Article	Abstract
	The development of digital technology has transformed administrative processes by providing faster, more efficient, and accessible solutions. In village governance, managing official correspondence remains a critical activity that often faces challenges in organization, accessibility, and transparency. This study presents the design and implementation of an electronic archive (e-archive) system for Desa Marga Mukti, Penarik District, Mukomuko Regency, using a mobile web-based platform. The system was developed with the Waterfall method, ensuring a structured and sequential approach to software development. The e-archive facilitates the management of incoming and outgoing correspondence, improves administrative efficiency, and supports public information disclosure. The system is user-friendly, easily accessible to village officials, and contributes to better governance by streamlining administrative tasks and promoting transparency in Desa Marga Mukti.

INTRODUCTION

In today's fast-paced technological era, digital technology has become an essential tool for facilitating daily activities, information management, and communication across all levels of society. Information technology (IT) has transformed many manual processes into more efficient and accessible digital solutions, including in governance and administrative services. The implementation of e-archive systems in government institutions, including village administrations, provides time and cost efficiency while improving document management. However, with the increasing volume of archives and correspondence, traditional methods often lead to lost, damaged, or disorganized records, making it difficult to retrieve information when needed. These challenges hinder administrative performance and service delivery. Therefore, adopting IT-based e-archive systems is crucial for ensuring document reliability, improving efficiency, and supporting transparency and accountability in village government operations.

The research was conducted by Febriansyah Dwi Kurnia. W, Latitude Ragadanu. A, et al. (2022) with the title Designing a Website-Based E-Archive Information System in Wrestiwan Village concluded that the application features in the village website can help in obtaining e-archive information better and effectively because the system already has a search function to make the search process faster (Sma & Surabaya, 2022). Research conducted by Maharani Hamidah, Kasman Rukun, (2019) with the title Implementation of the YII2 framework in the

electronic archive system (e-archive) raises the assumption that the electronic archive system is one of the things that will help in the implementation of correspondence in pekon or villages in order to be able to better utilize the needs of technology for administration. process. Since technology has developed significantly, archive management has also experienced an increase in the number of manual expansions which are now computerized expansions. (Hamidah & Rukun, 2003). The research conducted by Ari Gunanto, Endah Sudarmilah (2019), with the title Development of E-Archives Website in the Pabelan Village Office, with the conclusion that the Pabelan Village e-archive creates efficiency in storing various letters at the Pabelan Village office, that the Pabelan Village e-archive creates efficiency in storing various letters at the Pabelan Village office, and black box testing has been carried out so that it is suitable for use because the results are valid however, there is a possibility of trouble again and the system needs to be repaired and maintained (Gunanto & Sudarmilah, 2020).

Previous research by Febriansyah Dwi Kurnia W., Latitude Ragadanu A., et al., showed that existing systems for village correspondence management included features such as access to archives, incoming and outgoing letters, general cash books, and search functions. However, these systems lacked a dedicated service for managing outgoing letters, as proper letter numbering was required to avoid overlapping numbers. This limitation caused inefficiencies and suboptimal letter management during implementation, highlighting the need for a more comprehensive system that could be accessed online to prevent lost or damaged archives.

To address this problem, the researcher developed an electronic archive (e-archive) system for Desa Marga Mukti, Penarik District, Mukomuko Regency, based on a **mobile** web platform using the Waterfall method. The mobile web approach allows users to access the system easily from desktops or smartphones, making correspondence management more effective and efficient. The Waterfall method was chosen for its structured, sequential development process, ensuring that each phase of the system design and implementation is completed in order, which enhances usability and reliability. The implemented e-archive system enables users to upload scanned or digital files of correspondence, organize archives neatly, and retrieve documents easily for future use. Users can search, download, or print archived letters, reducing the risk of lost, damaged, or disorganized records. The system also improves administrative efficiency by allowing letter archives to be compiled according to date and type, supporting better governance, transparency, and service delivery within the village administration.

RESEARCH METHODS
Data Collection Methods
1. **Literature Study**
   Literature study is the process of collecting library information, reading, recording, and processing research materials is part of library research, also known as literature studies (Saputra et al., 2018) (SYAFITRI & NURYONO, 2020). Literature or literature study is a study that is carried out to collect data or theories for the purpose of writing research, in this case the author reads, searching from sources such as books on *the mobile web*, journals, theses and references related to research.
2. **Observation**
   This observation method is carried out by conducting direct observations at the Pekon Sumber Rejo office to obtain the accuracy of the data needed for research purposes. The result of the observation carried out at Pekon Sumber Rejo, is that the archival system is still manual and requires a computerized system, many archives are damaged, lost, wet and many have been piled up or buried with new archives.
3. **Interview**
   Interviews are a way of capturing data or information through direct or verbal interaction (S. Suyono et al., 2020). Interviews allow us to get information directly and directed to the source. This interview method was carried out by asking questions directly with related parties in Pekon Sumber Rejo, Pagelaran District to collect the necessary data as data for

research purposes. In this case, the author had an interview with the Secretary of Pekon, Mr. Paino, from the information provided by Mr. Paino, it can be concluded that during the preparation of the archives it was still underestimated and the apparatus was not aware of the importance of the archives. There are many things that cause the archival system at the Pekon Sumber Rejo Office to be done electronically because of the old building and leaky settings causing the archives to get wet. A large population of Termites or insects can cause damage to the archive. The outgoing mail numbering system that is still manual and focuses on 1 person causes delays in the service process to the community.

Development Methods

In system design using *the waterfall* method, the definition of the Waterfall method According to Sholikhah, et al (in Hamid Kurniawan, et al: 2021), explains that the Waterfall method is a classic model that has sequential properties in designing software (Kurniawan et al., 2021). This method has the following phases and descriptions:

1. Planning
   According to Ida Ayu Putu Anggie Sinthiya, Keni Puspita Sari, et al. (2021), Planning is the initial stage where at this stage the author identifies what is used and developed, and they determine the targets to be achieved (Ida Ayu Putu Anggie Sinthiya1; Kenny Puspita Sari2; Muhamad Muslihudin3; Suhendra4, 2021).
2. Needs Analysis
   According to Bambang Suyono, Wirta Agustin, Yoyon Efendi (2018), the stages that can be the basis of the overall software creation process and the completeness of *the software features* that will be produced are highly dependent on the results of this need analysis (B. Suyono et al., 2019).
3. System Design
   According to Hamzah Alfariz, Suyono, (2018), the system model is developed during the system design phase in response to existing needs and problems. For example, creating databases, programs, user interfaces, software and hardware specifications, network connections, and other components involved in modeling systems that need to be modified or created. (Hamzah Alfariz1 & Suyono2, 2018).
4. Implementation
   The purpose of the implementation stage is to carry out logical design specification activities into the actual activities of the information system that is being developed or built. After that, the new system is implemented using one of the programming languages deemed most suitable. The ability of the new system to function properly and optimally must also be ensured at this stage. According to Muhaimin, Suyono (2017), the implementation stage has the goal of carrying out logical design specification activities into the continuous activities of the information system to be developed or built, and only then implementing a new system into one of the programming languages used. very appropriate. (Muhaimin, 2017).
5. System
   The system referred to here is a system that has been completed and can operate optimally to achieve the desired goal. However, the system that is built must already have hosting and have a large enough storage capacity.

DISCUSSION
Interface Design

This web-based mobile web-based application *about Letter Governance E-archives at the Pekon Sumber Rejo Office, Pagelaran District*, is used to help the Pekon apartment in managing good and correct archives and improve its governance system which is still problematic and manual. The plan that will be used in this test is a Use Case Diagram (Use Case Diagram)

System Implementation

According to Tri Darma Rosmalasari, Mega Ayu Lestari et al. (2020), the implementation stage aims to carry out logical design specification activities into the actual activities of the information system to be created or built, and then the new system. To determine whether the system to be developed can really achieve the desired goals, the system must first be ready to be implemented. From the design of the interface, the following applications are produced that can appear on Pc and on *Smartphones*. The implementation of the system on Pc is as follows:

Figure 2. Login View on PC

It is only used for users other than superadmins because superadmins have full power to add, modify, view and delete and have the power to allow anyone who can become a user by giving a special code to users who want to *log in*.
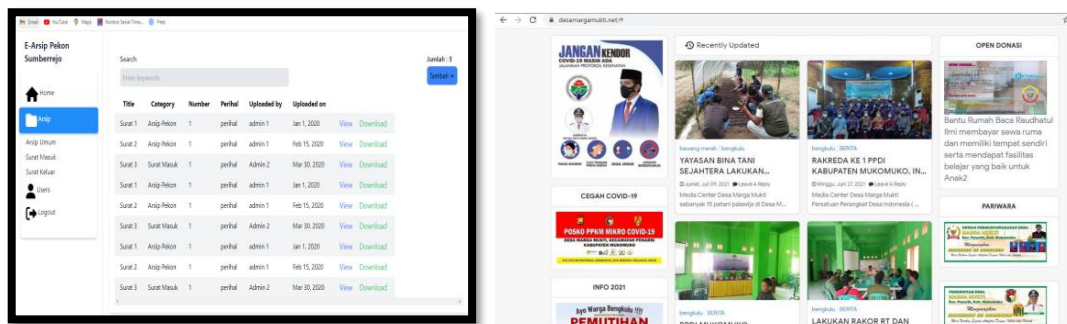

Figure 3. Dashboard View

The dashboard menu of the system consists of four sub-menus: total documents, total users, total categories, and the latest outgoing letters. Both admin and user dashboards do not have access to modify the content of these sub-menus, as the dashboard is not configured to display individual pages for each section. However, the dashboard provides statistical reports that show the development and trends of administrative activities, allowing users to monitor key metrics and the overall progress of document management within the village administration.

In the archive menu, all documents that have been entered into the system are available, including general village archives, incoming letters, and outgoing letters. This menu also includes a search function, which enables users to locate archives using keywords such as names, dates, document types, and other relevant parameters. The feature ensures that accessing and

retrieving archived documents is fast and efficient, supporting better organization and ease of use for both administrative staff and village officials.

Analysis of Research Results

The results of the system trial show that the mobile web-based electronic mail archive system functions well and meets the initial research objectives. However, there is a possibility of future errors, so the system still requires improvements, particularly in the user interface for a more optimal user experience. The system has proven to enhance effectiveness and efficiency in administrative document management, aligning with prior research by Febriansyah Dwi Kurnia W. et al. (2021), which emphasized that e-archive systems help organize incoming and outgoing letters to reduce errors and document loss. Similar findings by Nugroho et al. (2020) indicated that digital archival systems in local governments improve administrative efficiency and data accuracy.

Functionality testing shows that all key features, including incoming mail management, outgoing mail, archive search, and recapitulation reports, work smoothly according to user needs. According to questionnaires filled by village officials and administrative staff, a high level of user satisfaction was reported, consistent with the findings of Sari and Prasetyo (2019), who stated that user-friendly interfaces significantly increase the adoption of digital administrative systems. Additionally, the system supports cross-device accessibility, enabling officials to manage archives remotely, similar to research by Rahman et al. (2020), which highlighted the importance of mobile accessibility in digital governance.

Further analysis shows that the system positively impacts transparency and accountability in village administrative governance. Each letter is digitally recorded with a clear number and timestamp, making auditing and reporting more structured, in line with findings by Hidayat and Putra (2018) and Wahyuni (2021), who reported that e-archiving enhances accountability and facilitates better public service reporting. Therefore, this electronic correspondence archive system has proven effective in supporting the digital transformation of village-level governance, leading to more modern, transparent, and efficient public services.

CONCLUSION

Based on the research findings, it can be concluded that the implementation of a mobile web-based electronic mail archive system in Desa Marga Mukti, Penarik District, Mukomuko Regency, has a significant positive impact on improving the administrative governance of the village. The system effectively replaces manual processes that were prone to recording errors, document loss, and delays in mail distribution. Through archive digitization, every incoming and outgoing letter can be recorded, stored, and accessed in a structured, fast, and secure manner, thereby enhancing the efficiency of public administration services. Furthermore, the system strengthens transparency and accountability in village governance. All correspondence activities are digitally documented with timestamps and user identification, facilitating reporting and supervision by village officials and relevant institutions. The mobile web-based access allows officials to manage archives and correspondence anytime via mobile devices, supporting work flexibility and continuity. Overall, the development of this electronic mail archive system plays a crucial role in realizing a more modern, efficient, and accountable village administration, and it supports the digital transformation of local government to provide professional and responsive public services to the community.

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