



# Development E-Archive Web System for District Office Letters Management

Fifit Alfiah<sup>1</sup>, Ade Setiadi<sup>2</sup>, Andiena Amalia<sup>3</sup>

<sup>1,2,3</sup> Informatics Engineering Study Program, University of Raharja

Email: [fifitalfiah@raharja.info](mailto:fifitalfiah@raharja.info)<sup>1</sup>, [adesetiadi@raharja.info](mailto:adesetiadi@raharja.info)<sup>2</sup>, [andiena.amalia@raharja.info](mailto:andiena.amalia@raharja.info)<sup>3</sup>

## Abstract

Every company, business entity, or agency, both private and government, requires archiving activities because they are very necessary, given the importance of the role of archives. Therefore, to carry out archiving tasks properly, there must be improvements and optimal improvements so that they can function properly and achieve the goals that have been set. The availability of complete and accurate data and information will become a fundamental requirement in any organization, private or government. Understanding the significance of filing in terms of assisting leaders in making decisions or dealing with problems at the Larangan District Office in Tangerang City. Especially in the general section, where filing and processing document activities are still done traditionally, work takes a long time. The process of selecting data and reporting is difficult to manage because the data is distributed in multiple locations and various forms. Observation, interviews, and a literature review were used following the PIECES method. After analyzing, the authors propose a website-based Electronic Archive system for archiving incoming and outgoing mail, which also serves as a data storage area. As a result, the existence of a new system can reduce errors during data processing, and make the search process faster, and the reports generated follow the existing data.

**Keywords:** *Incoming Letter, Outgoing Letter, Electronic Archive, PIECE*

## 1. Introduction

Every company, business entity, or institution, both private and government, requires archival activities. Given the importance of archiving roles, it is necessary to improve and optimize archiving tasks for them to function properly and achieve the goals[1] that have been set. The availability of complete and appropriate data and information will be a basic requirement in any organization, whether private or government[2]. Computerized systems also have an important role in managing archival data. In the process of managing records using paper, there are still many problems, thus providing space for electronic or digital media[3] is another option in processing archives. One other form of archive storage is digital media, usually, archives can be stored in digital form in the form of images, video, sound, writing, or others. Archiving can be and is stored in digital data storage media[4]. Archives are one source of information that plays an important role in supporting an agency's

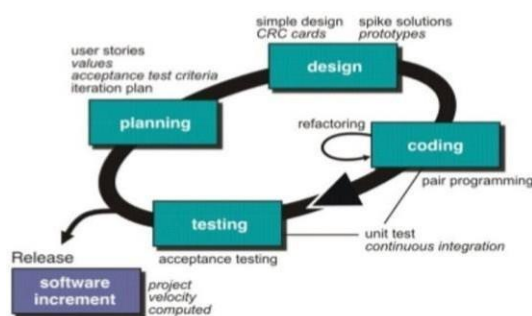
administrative and management activities [5]. All activities conducted by the agency, whether in the form of proposals, correspondence, or other documents, will be archived[3]. The recorded information serves as evidence, documentation, or memory for the agency concerned. Understanding the significance of archiving as a supporting function for leaders making decisions or dealing with problems at the Tangerang City Prohibition District Office. Especially in the general part, where traditional methods of archiving and document processing are still prevalent, work takes a long time[6]. The process of selecting and reporting data is difficult to process properly because the data is distributed in many places and uses many forms. The process of filing incoming and outgoing letters[7] is still a conventional process where the Applicant notifies the Head of General Affairs and Civil Service about the letter to be made and then waits for the Subdistrict Secretary[8] to be submitted to the Sub-District for signature, from this process later the letter will be archived into a file box

(Ordner) and then stored in the closet. Every one to three months, the sub-district head will receive a report[9] on the signed letter, which will then be entered into the archive book and recorded using Microsoft Excel[10]. The increasing number of letters every day results in the accumulation of documents that are not 3 archived and stored properly, resulting in an increased need for document storage and difficulties in searching archive data such as previously archived correspondence data[11] and it is feared that the data is lost or damaged.

## 2. Research Methodology

### 2.1 Extreme Programming

One agile technique that is frequently used, particularly in smaller application development projects, is extreme programming[12]. This is due to the fact that this approach is fairly straightforward and short while still utilizing a number of agile principles, which are thought to be a breakthrough in raising the productivity and efficacy of software development work. The extreme programming method is very suitable if faced with unclear requirements or very rapid changes[13].



**Figure 1:** Extreme Programming working stages[13]

1. Planning
  - a. During the XP planning stages, you determine whether the project is feasible and best suited for XP by delivering early and frequently to gather feedback. To accomplish this: a. Divide the project into iterations and develop plans for each.
  - b. Set realistic deadlines and maintain a sustainable pace.
  - c. Provide real-time updates to encourage honesty and transparency among your team.
  - d. Provide real-time updates to help teams identify, adapt, and make changes quickly.

#### 2. Designing

When you're first starting with extreme programming, start with the simplest design possible, knowing that subsequent iterations will make it more complex[14]. Do not include initial functionality at this stage because the XP

methodology team will frequently use class-responsibility-collaboration (CRC) cards to demonstrate how each object in the design interacts. By filling out each field on the card, you will see a visual interaction of all related and interacting functions[15]. CRC cards include Class (collection of similar objects), Responsibility (related to classes), and Collaborators (classes that interact with this one).

#### 3. Coding

One of the more unique aspects of XP is that you'll communicate with customers throughout the coding process. These collaborations enable you to test and incorporate feedback during each iteration, rather than waiting until the end of the sprint.

However, the coding rules in XP are quite strict. Some of these regulations include:

- a. All codes must follow coding standards.
- b. Conduct unit tests to define project requirements and develop various aspects.
- c. Programming As a couple, two developers collaborate on the same computer. This does not add time but rather requires double the focus to achieve the best results.
- d. Use continuous integration to add and test new code immediately.

#### 4. Testing

You have to test the entire process of Extreme Programming. All code must pass unit testing before release. If you find a bug during this test, you'll create a new additional test to fix it. During these tests, customers review the results to see how well you translate user stories into products.

### 2.2 Analisa PIECES

The analysis method used in this study is the PIECES method. His method is to analyze the problems and weaknesses of the old system. PIECES itself includes Performance, Information, Economic, Control, Efficiency, and Service[16], consisting of:

Parameter	Analysis Results
Throughput	The availability of digital archive storage allows documents to be stored properly and regularly.
Respond Time	Because archive storage still uses conventional methods, it will take a long time to recap letters every day

**Table 1:** Performance Analysis

Parameter	Analysis Results
Information	There are often delays in presenting information needed by leaders and units in need.

**Table 2:** Information Analysis

Parameter	Analysis Results
Cost	Several costs must be incurred by the agency such as paper, 53 paper punchers, and orders.

**Table 3:** Economic Analysis

Parameter	Analysis Results
System Control	System control is still weak because there is no data backup so if there is a loss data, then there is no replacement. Anticipation of data security is also not optimal, because anyone can open and change data.

**Table 4:** Control Analysis

Parameter	Analysis Results
Time Efficiency	Many important letters need to be archived every day so employees need to be careful in managing archives.

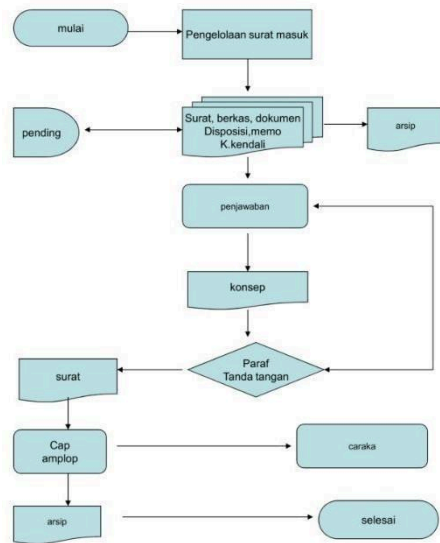
**Table 5:** Efficiency Analysis

Parameter	Analysis Results
Service	There are often delays in service to related units or units that need data because the process of searching for archive data is done manually with stacked data so this can take a long time.

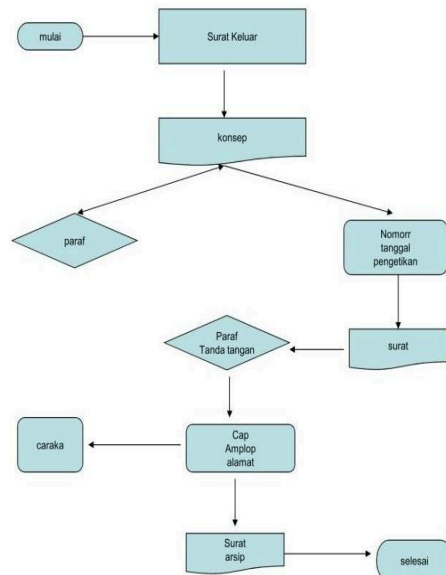
**Table 6:** Service Analysis

### 2.3 Design

The design of the running system and the proposed system are depicted in the form of a flowchart. Flowcharts make it easier to solve problems, especially those that require further investigation and evaluation[17]. A flowchart is a type of image or diagram with a sequential one- or two-way flow. Flow charts are analytical techniques that explain aspects of information systems in a clear, precise, and logical manner. A flowchart is a series of standard symbols that describe the transaction processing procedures used by a person as well as the flow of data in a system. Flowcharts are used to visualize and design programs. Flowcharts must be able to represent components in a programming language that is understandable when analyzing and developing a product as a problem-solving solution. Then the current running System *Flowchart* can be seen in the following Figure:



**Figure 2:** Flowchart for incoming mail



**Figure 3:** Flowchart for outgoing mail

After describing the system that runs above, the author describes some of the problems faced. Then next design a system that can solve the problem. Based on this, the proposed system is shown in Figure 4:

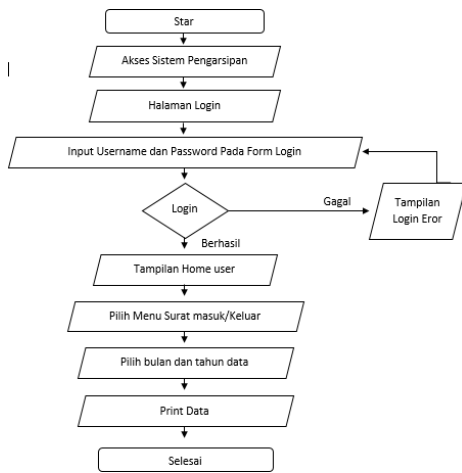
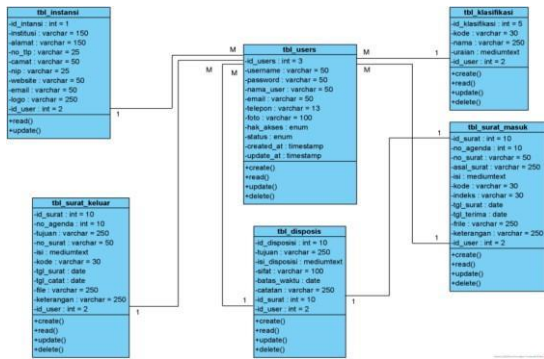


Figure 4: E-archive System Flowchart

### 3. Results and Discussion

#### 3.1 Class Diagram

Class Diagram Class Diagram is used to visualize database classes contained in the system which can also provide a global or overall picture of the database contained in the system in each class with continuous attributes and relationships.



Gambar 5: Class Diagram

Based on the Class Diagram above, there are: a. 6 classes, a set of objects that share attributes and operations including `tbl_instansi`, `tbl_surat_keluar`, `tbl_surat_masuk`, `tbl_user`, `tbl_klasifikasi`, `tbl_disposisi`. b. 6 Association, the relationship between one object and another.

#### 3.2 System Implementation

##### 1. Dashboard Page View

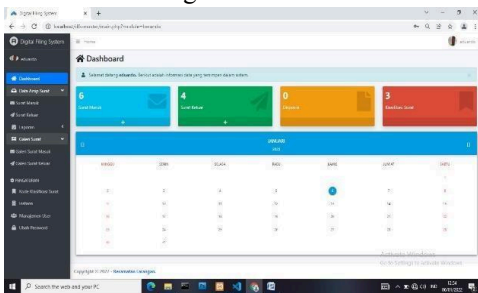


Figure 6. 10 Dashboard Menu Display

Figure 6 is a dashboard view for all users. It contains data on the number of incoming documents, data on the number of outgoing documents, data on the number of dispositions, data on the number of document classifications, and data on the number of users.

##### 2. Incoming Archive Data Page View

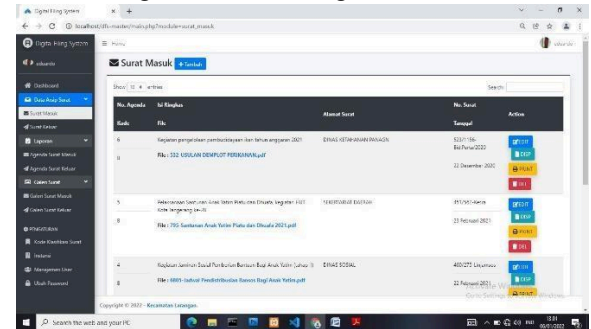


Figure 7: The Incoming Archive Data

Menu  
Disp  
lay

The display of Figure 7 is the display of the Login Mail Archive Data Menu to view and input incoming mail. Where the general kasabag can see the contents of the data. And can add as well as edit data and create its disposition. Inside there is the Agenda Number, Code, Brief Content, File, Letter Origin, Letter Number, and Date of Letter.

##### 3. Incoming Mail Input Page View

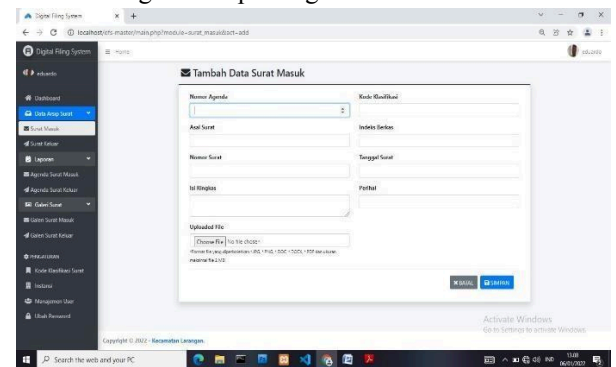
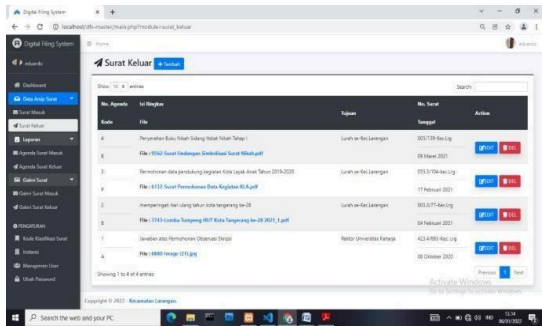


Figure 8: The Incoming Mail Input menu

The Figure 8 display is the Incoming Mail Input view for incoming mail archive data. Where the general head can add data through the form provided.

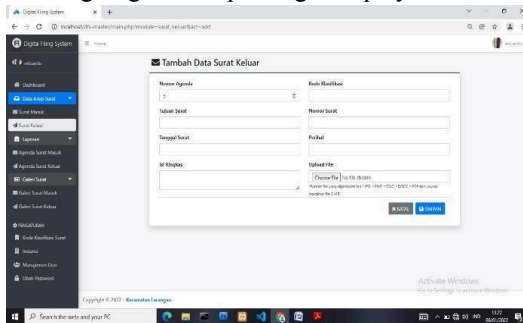
##### 4. Outgoing Archive Data Page View



**Figure 9:** Outgoing Mail Archive Data Menu Display

Figure 9 is the Outgoing Mail Archive Data Menu Display to view and input outgoing mail. Where the Head of General Affairs can see the contents of the data, and can add as well as edit the data.

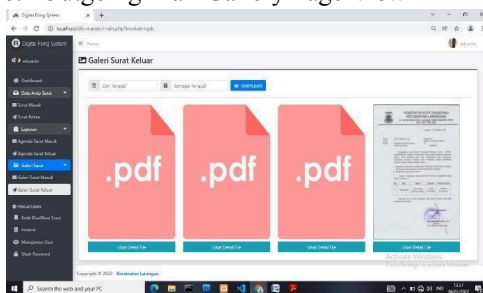
### 5. Outgoing Mail Input Page Display



**Figure 10:** Outgoing Mail Input Page Display

The Figure 10 display is the Outgoing Mail Input view for outgoing mail archive data. Where the general head can add data through the form provided.

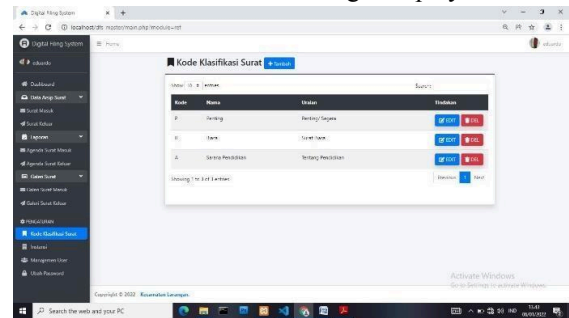
### 6. Outgoing Mail Gallery Page View



**Figure 11:** The Outgoing Mail Gallery Menu Display

The view of Figure 11 is the page view of the Outgoing Mail Gallery. Where the Head of the General Division, Subdistrict Secretary, and Subdistrict Head can search for letters based on date through the form provided and can see the details of the data.

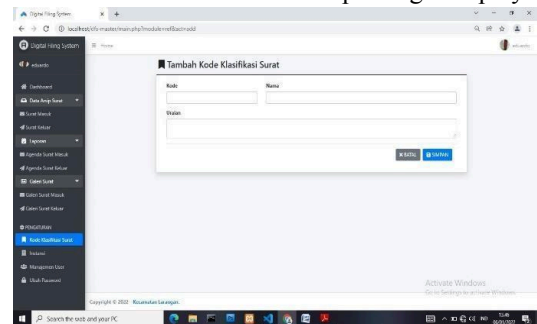
### 7. Mail Classification Code Page Display



**Figure 12:** Mail Classification Code Menu Display

The Figure 12 display is a Reference view for viewing and inputting Mail classification. Where the general kasabag can see the contents of the data. And can add as well as edit data. Inside there is a Code, Name, and Description.

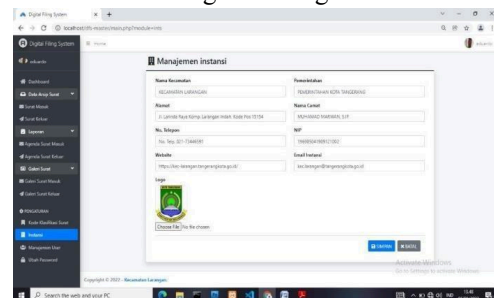
### 8. Mail Classification Code Input Page Display



**Figure 13:** Mail Classification Code Input Menu Display

The Figure 13 display is a Mail Classification Input display for reference data. Where the general head can add data through the form provided

### 9. Instance Management Page View



**Figure 14:** The instance menu display

Figure 14 is the instance menu for letterhead. Where the Head of General Affairs can update data on the form provided

#### 4. Suggestion

Suggestions that can be conveyed in research on digital archival systems to achieve optimal results to overcome existing problems, including:

1. Conduct equitable socialization for this system so that it can facilitate employees and staff, especially in the general department that needs mail archives.
2. If the new system is already running, it is necessary to maintain this system both from its functions and from database backups periodically to maintain the security of archive data.
3. In the future, it is hoped that it can be developed again, becoming a mobile application or a better application, so that it can facilitate urgent needs.

#### 5. Conclusions

it can be concluded that:

1. The filing system that runs at the Tangerang City Prohibition District Office is currently semi-computerized because the recording process still uses agenda books and Microsoft Excel and for storage of physical documents using paper media and file boxes (Ordner). The data processing process has not been maximized because it has not been computerized properly.
2. Obstacles and problems that often occur in the filing system at the Prohibition District office are that the recording process still uses agenda books document storage is still stored in cabinets and filings are quite a lot so that the letters become piled up and not neatly arranged so that it takes a long time to find the documents or letters needed.
3. Designing a web-based digital archival system by collecting system needs starting from elicitation, data collection, analyzing the system with the PIECES method, designing by focusing on data structures using MySQL databases, and by using PHP (Hypertext Processor) programming language that correlates with XAMPP, and testing with the Black Box Testing method. This system will be divided into several different access rights so that archives can be controlled and run according to their individual needs, also have fast and accurate searches and reports, so that obstacles that occur can be overcome properly.

#### BIBLIOGRAPHY

- [1] M. Churiyah, N. Muhajiroh, M. Arief, B. A. Dharma, and A. Basuki, "Improving Student Archival Management Competency by Using Codeigniter Web-Based e-Archive," 2021.
- [2] P. R. Andrean, I. P. G. H. Suputra, and L. A. A. R. Putri, "Perancangan

Sistem Elektronik Arsip (E-Arsip) Surat Kantor Walikota Denpasar."

- [3] I. Sistem E-Arsip Pada Kantor Desa Rantau Bertuah Kecamatan Minas Berbasis Web and E. Kariaton, "Technologica 95 Implementation Of E- Archive System At Rantau Bertuah Village Officece Minas District Web Based," vol. 2, no. 2, pp. 95–103, 2023.
- [4] M. Churiyah, M. A. Y. Prasetyo, A. Winarno, and L. N. Istanti, "Village Information System (SIADA) Enhancing the Performance of Village Office Staff," *Path of Science*, vol. 9, no. 8, pp. 3016–3025, Aug. 2023, doi: 10.22178/pos.95-36.
- [5] A. Basuki, M. Churiyah, B. Adi Dharma, and D. Ayu Sakdiyyah, "Archive Management System as Complementary Learning Media In the Digital Era," 2022. [Online]. Available: <https://ijhess.com/index.php/ijhess/>
- [6] D. Susilawati, S. Widadi, Parwoto, S. Maurine, and U. Polanunu, "Application Of Web-Based Archiving Information System (E-Sip) at BPK RI Yogyakarta," in *E3S Web of Conferences*, EDP Sciences, Nov. 2023. doi: 10.1051/e3sconf/202344007007.
- [7] A. Dewi Fortuna and A. Nurhuda, "Development of a Local Area Network-Based Filing System for Outgoing and Incoming Letters in the General Service of the Samboja Sub- District," vol. 4, no. 2, 2023, doi: 10.51967/tepijan.v4i1.2219.
- [8] D. A. Wulandari *et al.*, "Development of Microsoft Access-Based E-Archive Learning Media Applications on Archival Subjects 10 th Grade of Office Administration."
- [9] T. Novi Ashari and H. Pramusinto, "Prototype Development of Interactive Multimedia Manual and Electronic Recordkeeping Simulator for E-Archive Learning," *KnE Social Sciences*, vol. 3, no. 10, p. 1039, Oct. 2018, doi: 10.18502/kss.v3i10.3191.
- [10] S. H. Susanto, "Regional Office

- Administration System (SISMINKADA) as a Solution for Archives Management in the Special Region of Yogyakarta,” *International Journal of Regional Innovation*, vol. 1, no. 4, pp. 25–31, Nov. 2021, doi: 10.52000/ijori.v1i4.25.
- [11] “Rancangan Sistem Informasi E-Arsip Surat Masuk dan Surat Keluar (Dinas Pariwisata dan Kebudayaan Kota Tangerang).”
- [12] U. Usanto, L. Nurlaela, A. Sopian, and F. Alfiah, “Umrah Registration System Using Extreme Programming Method Towards Worship Tourism,” *International Journal of Cyber and IT Service Management*, vol. 3, no. 1, pp. 22–31, Aug. 2022, doi: 10.34306/ijcitsm.v3i1.104.
- [13] A. Supriyatna, “Metode Extreme Programming Pada Pembangunan Web Aplikasi Seleksi Peserta Pelatihan Kerja,” *Jurnal Teknik Informatika*, vol. 11, no. 1, pp. 1–18, May 2018, doi: 10.15408/jti.v11i1.6628.
- [14] A. Betiana, “Sistem Informasi E-Arsip Surat Pada Kantor Kecamatan Limau Dengan Menerapkan Metode Chronological Filing System,” vol. 2, no. 1, pp. 7–10, 2021.
- [15] Y. Herdiana and S. Rahmawati, “Perancangan Aplikasi E-Arsip Menggunakan Algoritma Sequential Search Untuk Pengarsipan Surat Pada PT. Visi Karya Prakarsa.”
- [16] D. H. A. N. A. R. M. R. S. and A. F. A. Fitriyani, “E-Archive Document Clustering Information System Using K-Means Algorithm,” Denpasar-Bali: Seventh International Conference on Informatics and Computing (ICIC), 2022.
- [17] D. A. Caroline, B. Ismanto, and L. Rina, “Implementation of digital archives using a dynamic archive information system,” *Jurnal Kajian Informasi & Perpustakaan*, vol. 10, no. 2, p. 189, Dec. 2022, doi: 10.24198/jkip.v10i2.33203.