



RESEARCH ARTICLE

Contract Employee Information System at Banda Aceh Public Works Department

Devi Febriana¹ | Harry Idwan^{2*} | Imilda³

^{1,2,3} Informatics Management Study Program, STMIK Indonesia Banda Aceh, Banda Aceh City, Aceh Province, Indonesia.

Correspondence

^{2*} Informatics Management Study Program, STMIK Indonesia Banda Aceh, Banda Aceh City, Aceh Province, Indonesia.
Email: harryidwan@stmiki.ac.id

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Abstract

This study aimed to develop a Contract Employee Information System for the Banda Aceh Public Works Department, utilizing Microsoft Visual Basic 6.0. In the pursuit of good governance, it is crucial to have a professional and qualified contract workforce to support the effective execution of official duties and public services. However, the department's current processes for data collection and management of contract employees face challenges regarding efficiency and effectiveness. Therefore, this research proposes a desktop-based information system designed to optimize these data collection and management processes. Data was gathered through fieldwork involving interviews and direct observation, supplemented by library research to ensure the validity and success of the study. The findings of this research are expected to positively impact the efficiency and effectiveness of contract employee management within the Banda Aceh Public Works Department.

Keywords

Information System; Contract Employees; Banda Aceh Public Works Department; Microsoft Visual Basic 6.0; Efficiency; Effectiveness.

1 | INTRODUCTION

Good governance is a critical aspect of achieving effectiveness and efficiency in the delivery of public services [1]. A key element of good governance is the availability of a professional, qualified, and responsible workforce [2]. In this context, contract employees play a significant role as an integral part of the operational continuity of government agencies. With a skilled workforce, government agencies are better equipped to meet the needs of the community and fulfill their designated service functions [3][4]. Banda Aceh, as one of the administrative centers in the Aceh Province, is no exception to the need for a qualified contract workforce. To optimize public services within the Banda Aceh city government, the Public Works Department plays a role in ensuring the availability of personnel that meet the required needs and standards. This department is responsible for various construction projects, spatial planning, and infrastructure maintenance within the city of Banda Aceh. Advances in information and communication technology have significantly impacted various aspects of life [5], including the operations of government agencies [6][7]. Various technological innovations have been implemented to enhance efficiency and effectiveness in work processes, including human resource management. One widely adopted solution by government agencies is the use of computer-based information systems to facilitate data and information management [8]. However, despite technological advancements simplifying many work processes, the Banda Aceh Public Works Department still faces challenges in managing contract employees. The processes of data collection, performance monitoring, and administrative management of contract employees are still performed manually, leading to potential errors and delays in decision-making.

This study aims to develop a Contract Employee Information System to assist the Banda Aceh Public Works Department in optimizing its human resource management. The proposed information system will be designed using Microsoft Visual Basic 6.0, an application development platform that was quite popular in its time [9][10]. Through this information system, it is expected that the processes of data collection, performance monitoring, and administrative management of contract employees can be carried out more efficiently and effectively [11]. In this study, the scope will be limited to the design of a contract employee information system for the Banda Aceh Public Works Department. The data collection methods used include fieldwork with interviews and direct observation, as well as library research to support the validity and success of the study [12]. This research is expected to contribute positively to improving the efficiency and effectiveness of contract employee management at the Banda Aceh Public Works Department, and to serve as a contribution to the effort of achieving better governance in the city of Banda Aceh.

The concept of a system varies across different fields. Wahyudi Kumorotomo & Subando Agus Margono (2004) define a system as a collection of organized elements or components that interact, depend on each other, and are integrated. Gordon B. Davis (2002) states that a system is a set of interrelated parts that operate together to achieve certain goals or purposes. L. Ackof (2000) defines a system as a unity, both conceptually and physically, consisting of interdependent parts. Budi Sutedjo views a system as a collection of interrelated elements forming a unity in an effort to achieve a goal. From these definitions, a system can be understood as a collection of interacting elements to achieve a specific objective. The concept of information also varies. Moekijat (2005) describes information as the result of processing data obtained from system elements into an easily understood form and as relevant knowledge needed to enhance understanding of facts. Data, on the other hand, is a reality that describes an event or a real entity at a specific time. Data can be in the form of numbers, text, documents, images, or other forms. The process of data processing through a system transforms it into information that is useful for decision-making. Therefore, information can be understood as data that has been processed into a meaningful and useful form.

A Computer-Based Information System (CBIS) is a system that processes data into quality information and is used as a decision-making tool. The term "computer-based" indicates that computers play a crucial role in this process. An information system can be defined as a series of formal procedures in which data is grouped, processed into information, and distributed to users [8]. Overall, an information system is a framework that coordinates resources to transform inputs into outputs to achieve organizational goals. Data is the source of information. McLeod (in Yakub, 2012) explains data as a description of reality that depicts an event or fact. Data can be in the form of text, numbers, images, audio, or video [11]. Text is a sequence of letters, numbers, and symbols that are not dependent on each item individually. Formatted data is data with a specific format, such as dates or currency values. Images are data in the form of pictures, while audio is data in the form of sound. Video is data in the form of moving images with sound. A computer, derived from the Latin word "computare" meaning to calculate, is an electronic calculating machine that can receive digital input information, process it according to the program stored in its memory, and produce output in the form of information. Computers can perform several tasks, including receiving input, processing input according to its program, storing commands and processing results, and providing output in the form of information. In application development, computers are used as tools to build programs that meet user needs.

A flowchart is an analytical technique used to explain aspects of an information system clearly, accurately, and logically. Flowcharts use standard symbols to describe the transaction processing procedures used by a company, as well as to describe the flow of data within a system. There are several types of flowcharts commonly used, including

system flowcharts, document flowcharts, schematic flowcharts, program flowcharts, and process flowcharts.

System design is a stage in information system development that aims to design the arrangement of various system elements so that they can operate effectively and efficiently. In system design, there are several stages, including system analysis, system design, system development, system implementation, and system evaluation. Each of these stages requires appropriate methodologies to ensure that the resulting system meets the needs and goals of the organization. System analysis is the process of understanding user needs, determining system requirements, and outlining the characteristics of the system to be developed. System analysis involves gathering information, identifying problems, and developing appropriate solutions to solve the problems faced by the organization. System analysis can be done using various methods, such as observation, interviews, questionnaires, and document studies. System design is a stage in information system development that aims to design the arrangement of various system elements so that they can operate effectively and efficiently. In system design, there are several stages, including system analysis, system design, system development, system implementation, and system evaluation. Each of these stages requires appropriate methodologies to ensure that the resulting system meets the needs and goals of the organization. System development is a stage in information system development that involves creating or purchasing system components, testing components, testing the entire system, and preparing for system implementation. System development requires the selection of appropriate technology, the development of programs that meet the needs, and thorough testing to ensure that the resulting system can operate properly.

2 | BACKGROUND THEORY

The development and implementation of information systems within organizations, particularly government agencies, are deeply rooted in the principles of efficiency, effectiveness, and good governance [13]. At its core, an information system is a structured network of components—including hardware, software, data, people, and processes—that work together to collect, process, store, and disseminate information [14]. This information is crucial for supporting decision-making, operational control, and strategic planning within an organization. The effectiveness of an information system hinges on its ability to transform raw data into meaningful information. Data, in its most basic form, is a collection of facts, figures, or observations. However, data alone is often insufficient for decision-making. It must be processed and organized to provide context and insight, thereby becoming information. This transformation process involves various techniques, such as data analysis, manipulation, and summarization. The resulting information should be accurate, timely, relevant, and accessible to the intended users.

Information systems play a vital role in streamlining various processes. These systems can facilitate the storage and retrieval of employee data, track performance, manage payroll, and support recruitment and training activities [15][16]. By automating these tasks, organizations can reduce administrative burdens, minimize errors, and improve overall efficiency. This is particularly important in settings where large numbers of employees are managed, such as in government agencies. The design of an effective information system requires a thorough understanding of the organization's needs and objectives. This involves a systematic approach that includes several key stages: system analysis, system design, system development, system implementation, and system evaluation. System analysis is the initial stage where the current system is examined, problems are identified, and requirements for the new system are defined. System design involves creating a blueprint for the new system, specifying its architecture, components, and interfaces. System development involves the actual construction of the system, including coding, testing, and documentation [17]. System implementation involves deploying the system within the organization and training users [18]. System evaluation involves assessing the system's performance and making necessary adjustments.

The use of computer-based information systems (CBIS) has become increasingly prevalent in modern organizations. CBIS leverages the power of computing technology to automate and enhance information processing. These systems can range from simple databases to complex enterprise resource planning (ERP) systems. The choice of technology depends on the specific needs and resources of the organization. Flowcharts are a fundamental tool in the design and analysis of information systems. They provide a visual representation of the steps involved in a process, making it easier to understand the flow of data and control. Flowcharts use standardized symbols to depict different types of operations, such as input/output, processing, and decision points. They are essential for documenting existing processes and designing new ones. The development of an effective information system requires a holistic approach that considers the organization's needs, the nature of the data, the technology available, and the processes involved. By carefully planning and implementing information systems, organizations can improve their efficiency, effectiveness, and overall performance.

3 | METHOD

This research employs a systematic approach encompassing several key stages designed to effectively achieve the stated research objectives. The study will commence with a thorough system analysis phase. This phase will involve gathering information through fieldwork, utilizing both interviews and direct observation techniques. The data collected will be meticulously analyzed to gain a comprehensive understanding of user needs, define system requirements, and delineate the characteristics of the proposed system. This analysis will serve as the foundation for subsequent design and development activities. Following the system analysis, the system design phase will be undertaken. This phase focuses on creating a blueprint for the system, outlining the arrangement of its various elements to ensure effective and efficient operation. The design process will involve formulating appropriate solutions to address the challenges identified during the system analysis. This will include defining the system's architecture, data structures, user interfaces, and functional specifications.

Upon completion of the system design, the system development phase will begin. This phase encompasses the creation or acquisition of system components, including software modules and hardware infrastructure. It also involves rigorous component testing, integrated system testing, and comprehensive preparations for system implementation. The development phase will necessitate the careful selection of appropriate technologies, the development of tailored programs to meet specific needs, and thorough testing to guarantee the system's operational integrity and reliability. Throughout the entire research process, library research will be conducted to provide additional support for the validity and success of the study. This will involve reviewing relevant literature, scholarly articles, and other resources to ensure the research is grounded in existing knowledge and best practices. This combination of empirical data collection and literature review will strengthen the overall rigor and credibility of the research findings. By employing this structured methodology, this research aims to contribute positively to improving the efficiency and effectiveness of contract employee management at the Banda Aceh Public Works Department. Furthermore, the study seeks to contribute to the broader goal of achieving better governance within the city of Banda Aceh.

4 | RESULT

The Banda Aceh Public Works Agency is responsible for various development projects, spatial planning, and infrastructure maintenance in Banda Aceh City. Currently, the contract employee management process is still done manually, causing potential errors and delays in decision making. Therefore, this study will design an information system using Microsoft Visual BASIC 6.0 to facilitate the data collection process, performance monitoring, and management of contract employee administration. This research process uses a field study method with interview techniques, direct observation, and library studies. The author limits the scope of the study to only the design of a contract employee information system at the Banda Aceh Public Works Agency. Analysis of the ongoing system revealed a number of problems, such as the data collection process which is still manual, sending contract employee files by post, and the need for better control. To overcome these problems, the author proposes the development of a computerized web-based information system. This system will allow the data collection process to be carried out online, speed up access to information, and minimize errors. This solution will also require knowledge transfer to users in order to operate the system properly. In addition, the author designed the program using the PHP and MySQL programming languages, with certain hardware and software specifications. The final result of this research will be a more efficient and effective information system in contract employee management at the Banda Aceh Public Works Agency, providing a positive contribution in improving the quality of public services and realizing better governance in Banda Aceh City.

The analysis of the design of a contract employee information system for the Banda Aceh Public Works Agency is an important step in efforts to improve the efficiency and effectiveness of contract employee data management. In this design process, the main objective is to produce an application program that is able to manage employee and contract employee data well, and provide the information needed by the Personnel Administration Section and the Head of the Banda Aceh Public Works Agency as a consideration in making decisions related to the rank order list (DUK). Several problems or obstacles were identified in the ongoing contract employee information system, which if not immediately resolved could hinder the performance of the system. Several problems faced include the use of standard applications such as Microsoft Office Excel for employee data collection, incomplete file delivery, difficulty in checking the completeness of files by the administration section, and the accumulation of contract employee documents that take up a lot of space.

To overcome these problems, a data structure was designed consisting of two main parts: user data and employee data. This data structure is the basis for developing applications using Visual BASIC 6.0. The application

design includes several key features, such as a login process for access security, a main menu that facilitates user navigation, an employee data input feature to enter contract employee information into the system, an employee data output feature to print processed data, and a data search feature to facilitate access to certain information. The implementation of this contract employee information system design is expected to provide a number of advantages compared to the current system. One of them is the reduction in operational costs required for the purchase of equipment or office stationery needed in manual data processing. With a computerized application, the use of office equipment can be minimized because most of the processes have been automatically carried out by the system. In addition, time efficiency in updating data will also increase because the process becomes faster and more efficient. Broader data management will also be easier to do because the automated system is able to handle larger data volumes more efficiently.

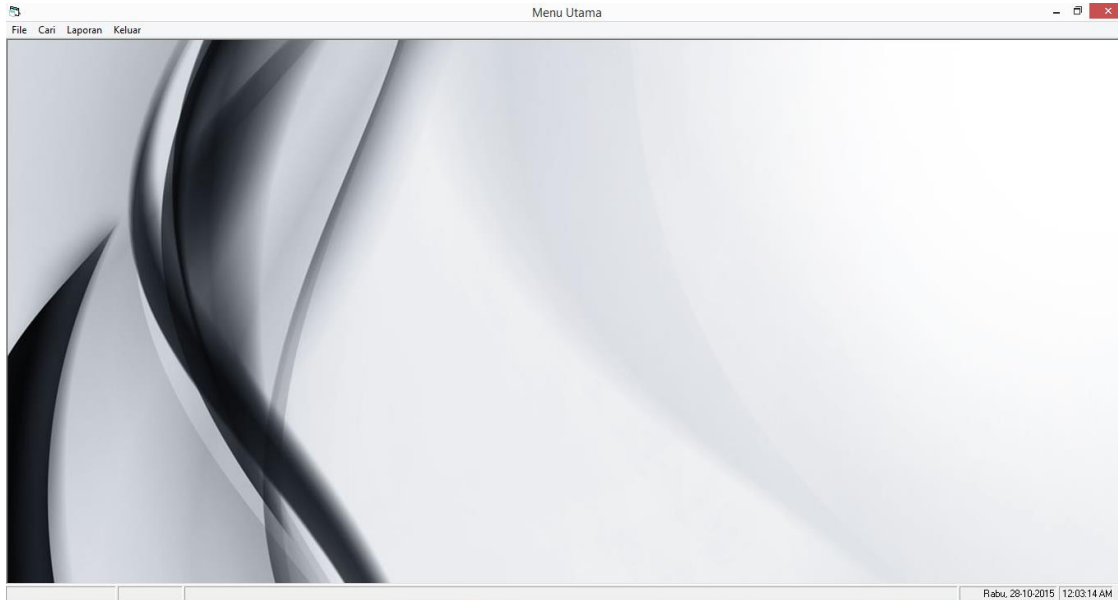


Figure 1. Main Menu Form

A screenshot of a web form titled "FORM TAMBAH : DATA PEGAWAI DAN KONTRAK". The form has a header with buttons: "Input", "Edit", "Hapus", "Simpan", "Batal", and "Iutup". Below the header are four tabs: "Identitas Pegawai Kontrak/ PNS", "Khusus PNS", "Khusus Tekhnisi dan Pengawas", and "Daftar Pegawai". The "Identitas Pegawai Kontrak/ PNS" tab is active. The form contains various input fields and dropdown menus for data entry. Fields include: "a. Jenis PTK" (dropdown), "b. Nama Lengkap" (text), "c. Jenis Kelamin" (dropdown), "d. Ijazah Terakhir" (dropdown), "Tahun" (text), "Universitas" (dropdown), "Jurusan" (dropdown), "e. Gelar Akademik" (dropdown), "f. NIY/NIGK" (text), "g. NUPTK" (text), "h. Tempat Lahir" (text), "Tanggal Lahir" (dropdown, value: "9 / 7 /2015"), "i. NIK" (text), "j. Agama" (dropdown), "L. Nama Ibu Kandung" (text), "k. Status kawin" (dropdown), "Jumlah Anak" (text), "m. Alamat Tempat Tinggal" (multiple text fields for address components: (1) Jalan, (2) Desa, (3) Kecamatan, (4) Kab/Kota, (5) Provinsi, (6) No. Telepon Rumah, (7) Alamat Email), "Kode Pos" (text), "No. HP" (text), "n. Status Kepegawaian" (dropdown), and "o. Status Aktif" (dropdown).

Figure 2. Employee Data Input Form

DINAS CIPTA KARYA LAPORAN KEPEGAWAIAN DAN KONTRAK										
JENIS PTK : KONTRAK										
NO	NAMA	NIP/ GOL	TEMPAT/ TGL LAHIR	JABATAN	TMT	IJAZAH TERAKHIR	UNIVERSITAS	JURUSAN	STATUS KECERAKAN	
1	Maimunah	-	-	-	-	S2	Negeri Malang	Magister matematika	Kontrak	
2	Mariani	-	-	-	-	S2	Negeri Malang	Magister Biologi	Kontrak	
3	Mifa karmila	-	-	-	-	D-IV/S1	Almuwatim Bireun	Biologi	Kontrak	
4	Mira Idayati	-	-	-	-	D-IV/S1	Abulystama B.Aceh	B.Inggria	Kontrak	
5	Suryati	-	-	-	-	D-IV/S1	IAIN Ar-Raniry B.Aceh	B.Arab	Kontrak	
6	Bambang Edi Purnomo	-	-	-	-	D-IV/S1	STIS Jamiatut Lhokseukon	Syari'ah muamalah	Kontrak	
7	Hirwanto	0001	-	-	-	D-IV/S1	Al-Azhar cairo mesir	hadist	PNS	
8	Nurmalizar	00010	-	-	-	D-IV/S1	Generasi muda medan	B.Indonesia	PNS	

Figure 3. Contract Employee Data Output Form Design

The proposed Contract Employee Information System features a user-friendly interface designed for efficient data management. The Main Menu Form (Figure 1) serves as the central navigation point, providing access to various system functionalities. From this menu, users can proceed to the Employee Data Input Form (Figure 2), which allows for the entry and modification of contract employee information. This form is designed to capture all relevant employee details in a structured manner, ensuring data accuracy and completeness. Once data has been entered and processed, the system provides the ability to generate reports through the Contract Employee Data Output Form Design (Figure 3). This output form allows users to print processed data, providing a tangible record of the information stored within the system. The availability of these printed reports facilitates easier access to information for decision-making purposes. Beyond the basic data input and output functions, the system also offers the advantage of enabling more in-depth data analysis, leading to improved decision-making. The ability to generate processed reports provides leadership and data users with readily accessible information crucial for making informed decisions. This, in turn, is expected to positively impact the quality of public services delivered by the Banda Aceh Public Works Department. Furthermore, the implementation of this system is anticipated to contribute to improved governance within the city of Banda Aceh. This contract employee information system has the potential to significantly improve data management practices within the department. By providing a structured, efficient, and computerized platform, the system aims to enhance the department's operational performance and efficiency, ultimately contributing to better public service delivery.

5 | CONCLUSIONS AND FUTURE WORK

Based on the results of the analysis and development of the contract employee information system for the Banda Aceh Public Works Agency, it can be concluded that the implementation of this system provides several significant benefits. First, this system makes it easier for the Agency to monitor contract employee data and performance more efficiently. Second, with the login feature, system security can be guaranteed more access by unauthorized parties. Third, the use of a database increases the accuracy and completeness of information about employees, which has an impact on improving the quality of services provided. Fourth, this system provides easier, faster, and more accurate services for contract employees. To improve the effectiveness and efficiency of the contract employee information system, several suggestions can be made. First, optimizing computer use should not only focus on Microsoft Office applications, but also consider the use of all relevant software to maximize data processing results. Second, to optimize computer use, it is necessary to add human resources who are skilled in interacting with computers, so that they can produce optimal output. By implementing these suggestions, it is hoped that the contract employee information system can operate more effectively and provide greater benefits for the Banda Aceh Public Works Agency.

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