Web Based Tolada Village Information System Design

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Abstract **–The limitation in conveying information from the village head to the community is still very slow because they have to write to the head of the neighborhood unit (RT). This condition is very ineffective, so the purpose of this research is to build an application that can facilitate the government and the Tolada village community in getting information quickly. This application is built using the programming language PHP, Javascript and MySQL DBMS which is then tested for quality by the black box method. The results of the study indicate that this application is feasible and effective for use by the government and the local community based on the recommendation of an expert validator in the field of information technology.**

Keywords **–Information system, smart village, village application, Javascript, MySql.**

1. Introduction

The development of information technology is so fast that all private and government-owned agencies are trying to keep up with these developments by presenting information technology that can manage data quickly [1], [2], [3].

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An information system is a system of providing information or reports quickly to an organization or government which can be stated as an assist system in conveying an event or information to the general public quickly, easily and accurately [4], [5], [6], [7].

Information technology facilities are currently not only felt by urban residents but also rural residents are part of the process [8], [9], [10]. However, several villages in Indonesia have not used information technology facilities optimally, especially Tolada Village. In contrast, European countries in the last decade have undergone a transformation towards an information society and they state that adapting to change is not an opportunity but a necessity. Tolada village is a small village located in Malangke sub-district, Luwu Utara district, South Sulawesi province, where this village has a population of less than 4,118 people and is 30 km from Masamba city and geographically, Tolada village is lowland and flat.

Based on the results of direct observations and interviews conducted at the research location related to the problems that occur at this time, it is still difficult for the village government to convey information to the surrounding community quickly and update because it is still using the conventional model through correspondence to the head of the local neighborhood unit (RT) and telephone which is then conveyed to the public through the mosque's loudspeaker.

The incident is considered a problem that must be resolved. So that a system is needed that can make it easier for the Tolada village community to get information related to activities and work programs that exist in the village. This village web-based information system can be accessed by the community easily, anywhere and anytime without having to wait for information from the mosque or come directly to the village office.

1.1. Proposed Solution

This research was conducted with the aim of building a web-based system that can assist village governments and communities in disseminating information and obtaining information related to policies and work programs from Tolada Villages. The village website can provide information in the form of the characteristics of a village, data, natural resources, and village events that will take place in the future and a good information system can increase public trust and obtain new ways of long-distance communication via the internet network [11], [12]. Village digitization is not only limited to technology but is also related to community skills and mindset leaps in creating changes in the future of the village, so that several countries in the world are trying to develop villages into digital villages [13], [10].

The tolada village information system or application is built using the PHP, Javascript and MySQL DBMS programming languages, while testing of this application uses the black box method and asks for feedback or suggestions from various teams of information technology experts so that the advantages and disadvantages of the system can be known by developers to avoid the unwanted to happen.

1.2. Theoretical Study

Village development and village development planning by the village government are not easy and trivial things [14]. Like the village information system, an integral part of the implementation of the 2014 Village Law in Indonesia [15]. It is clearly stated that the village development information system and rural area development have the right to get access to information through information systems developed by the district government, such as cloud computing-based information systems [16], [17]. One of the products needed by the village today, especially the village of Tolada, is an information system application that can be accessed by the government and the community, because it is not only a tool to monitor village development but also as a village library that contains data for village development work programs and rural areas of course.

Website is an information presentation service that uses the concept of a hyperlink that makes it easier for computer users to browse or search for information via the internet and as a mean of overcoming the problem of conventional information dissemination to become a smart village or digital village [18], [19]. The website presents information using Hypertext Markup Language so that it can display various information in various data formats such as text, images and even video and can be accessed using various client applications [20], [21], [22]. Besides being known as simple and easy, the existence of the server side programming category on the web allows the presentation of more interesting and dynamic information with organized data processing.

Hypertext Markup Language (HTML) has evolved with its new version, namely HTML 5 which is a data format used to create hypertext documents that can be read from one computer platform to another without the need to make any changes [23]. HTML documents are called markup languages because they contain certain signs that are used to determine the appearance of the text and the level of importance of the text in a document [24]. System hypertext in HTML documents is a symbol written in a file that is used to display pages in a web browser [25].

Personal home page (PHP) is an open source web server side programming language similar to JavaScript and popular in website development [26]. PHP is a script that is integrated with HTML and is located on dynamic web pages, while Cascading Style Sheets (CSS) is a collection of web programming code that functions to control several components on the web to adjust the style of the website display so that it looks uniform, structured and orderly [22]. MySQL database is used to store data and connect between tables that contain data in a database [27].

Furthermore, design is the activity of making a certain model and if it is associated with the definition of system design, it can be defined as the process of developing a system with certain specifications based on the results of system analysis recommendations to solve problems faced by the company. While the system is a network of procedures that are interconnected, gathered together to perform an activity or to complete a certain goal [28]. Further information is data that is processed into a form that is more useful and more meaningful to the recipient, but the form of the data is still raw which cannot tell much, so it needs to be processed further.

The village information system is a combination of human activity and technology which includes hardware and software facilities, a network managed by the smart village government to provide accurate and fast services in public services [29], [30]. Of course, the development of the system must involve various types and types of data that can be processed so that they can be displayed easily to users.

Black box testing is a software testing method that can test application functionality [31], [32]. A good system is a system that can run according to its function and certainly does not conflict with the internal structure of the system[33]and this is known

through testing to uncover the maximum errors of the developed application [34]. The advantage of black-box testing is that it does not require special knowledge of application code or internal programming structures in an application that is developed but focuses on the functionality and output of the resulting system [35].

2. Research Methods

This research is a development research, where the researcher builds a system to be used in one of the villages in South Sulawesi, Indonesia, to be precise in the village of Tolada, Malangke sub-district, Luwu Utara Regency. The method used in building this system is the System Development Life Cycle (SDLC) by following 8 stages [36], [37] namely: 1) Observing the feasibility of the project implemented in the field, 2) Observing and analyzing the current system, 3) Adjusting user requests, 4) Choosing the right solution according to user needs or problems, 5) Determining the right software and hardware for system development, 6) Design and develop the system, 7) Implement the system that has been created, 8) Perform system maintenance and repair.

The development of this system certainly requires valid data sources through interviews, observations and documentation to produce a village information system that is in accordance with the wishes of the local government. In order to facilitate the development of the system, a use case diagram is needed that can explain each user level and the actions that can be taken by the system itself as shown in Figure 1.

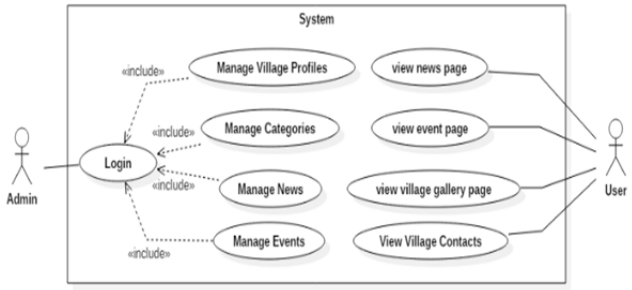

Figure 1. Use Case Diagram Research

3. Results and Discussion

Various countries will do everything to develop their regions, especially Indonesia [38], [39]. In this era of increasingly advanced and sophisticated technology, due to progress and increasing demand for the internet, it also affects the development of systems in the regions, especially in the village of Tolada [14], [40]. One of these developments is through the improvement and development of village information systems. Information systems and technology in a village affect the quality of life of rural residents, especially in Indonesia [38], [41].

The village information system can be used by the village itself to organize digital-based village governance so that it can improve public services and account for the results of village development [42], [43]. In line with the description above, the development of a village information system must have a goal to produce a village information system that will make it easier for the village government to report good and safe data and provide valid information to the community [44], [45].

The results of this study are a website-based information system, in order to facilitate the Tolada village community in accessing information quickly and accurately. This information system has several important parts contained in the application such as the login page for admin, then the main page, user list, category list and announcements. The system display is shown in Figures 2 and 3.

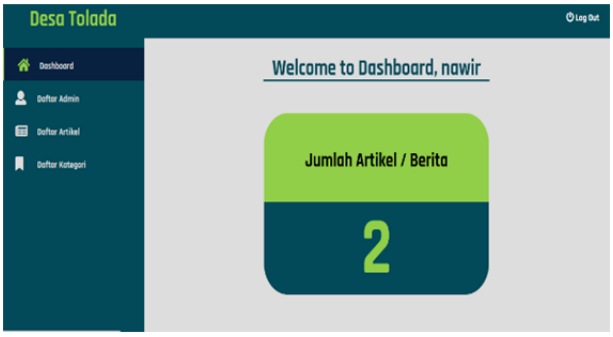

Figure 2. Main Page Display

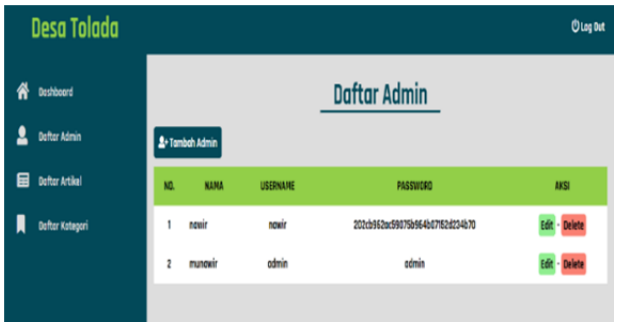

Figure 3. Admin List

The admin dashboard is a control panel that functions to manage all website activities. When the admin manages to enter the username and password correctly, it will go to the admin dashboard page. If the username and password are successful then the admin can login, if the password or username is wrong then the admin will fail to login. The admin dashboard feature on the tolada village information system has several more sections such as adding admin, adding articles, listing categories/announcements.

The admin list is a feature that can add a substitute admin by clicking add admin, then the category list is the type of information that will be provided to the tolada village community, where the admin can add

or delete categories on the tolada village information system, while the list of articles is used by the admin to add articles or village information for the community. In addition to being able to access information, the Tolada village community can also contact the admin by telephone, email, or directly to the website by clicking the village contact button as shown in Figure 4.

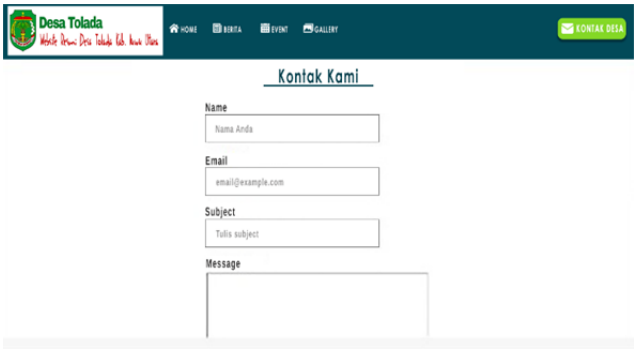

Figure 4. Village contact information display

The final display of the village information system can be seen in Figure 5, where the Tolada village community can only access or view information provided by the admin such as news, village events, and village galleries, so that the village heads do not have to use conventional methods anymore to convey information to the community through mosque loudspeakers or come directly to their respective homes.

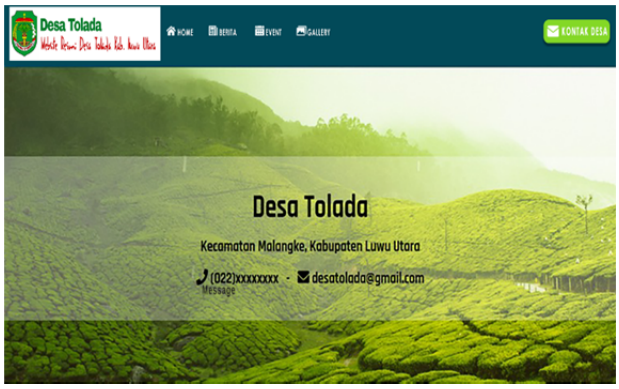

Figure 5. Village Information System Display

Besides being able to access information, the Tolada village community can also contact the admin by telephone, email or directly to the website by clicking the village contact button. After the system is developed according to the needs of the village apparatus, then further testing is carried out on the system with the aim of testing its quality [46]. The testing phase at this stage is carried out by means of black box testing and asking for feedback from information technology experts regarding the readiness of the system before it is given to users widely. The results of system testing can be seen in the following table:

Table 1. Black box system test results

No	Test Case	Test Scenario	Expected results	Results
1.	Admin Login	Enter username and password	Show main page	Valid
2.	Admin list	View admin list	Displays a list of registered admins	Valid
3.	Category List	View existing categories	The system will display the existing categories	Valid
4.	Button Edit and delete	Can edit and delete data	Admin can edit and delete data	Valid
5	Community Access	Can access the system	Can view information, events and galleries	Valid

In addition to the results of the back box testing, it also involves a team of information technology experts to validate or assess the quality of the system in terms of content, narrative and security [47], [48], [46], [49] although it is known that network security systems and information systems require a lot of costs and resources [50], [51]. The number of expert teams involved is 15 people and the results of the assessment show that this system is feasible to use because the value of the expert assessment results is 0.85 (85%) with various suggestions for improvements that have been revised. This value has a score greater than 0.80 which means that the agreement between raters is good. Based on Kappa Cohen's statistical theory and the intra-class correlation coefficient (ICC), the agreement value between 0.6 and 0.80 indicates agreement between raters or observers is good, while 0.81 to 1.00 indicate very good agreement or almost perfect agreements [52], [53], [54], [55], based on the formula for intra-class correlation coefficient (ICC) [56].

After an assessment by experts, then asked for responses from respondents or the village community as many as 300 people to provide positive responses related to the system that has been developed and the results of information search appear that 88% (265 people) of users are satisfied with the presence of the village information system, because they feel helped in obtaining accurate information, the remaining 12% (35 people) were quite satisfied. This is also explained by [51], [57] that a good information system is a system that pays attention to service quality and contributes to policy making. Furthermore [58], [59] explained that the digital-based environment has a positive impact in the long term.

4. Conclusion

The conclusion of this study is to produce a village web-based information system to facilitate the Tolada village community in accessing information quickly and accurately. So that the village government is able to serve the community quickly and make it easier for the village government to convey information to the community anytime and anywhere.

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