

Web-Based Electrical Customer Service System

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Abstract

The Electricity Customer Service Information System is a website for making new electricity requests and changing electrical power. Along with the development and advancement of technology, industrial technology is closely related to electric power, one of the most significant aspects that vigorously supports the development, particularly in the Information Technology sector in the urban world. Electric power is a fundamental element for enhancing the welfare of society. Therefore, electrical energy is a measure of societal development. Thus, a website-based information system was developed employing an observational data-gathering technique. This study utilized System Development Live Cycle (SDLC) as the system development approach, Unified Modeling Language (UML) for system analysis and design, PHP as the programming language, and MYSQL as the database.

Keywords: *Customer Service Information System, MYSQL, PHP, SDLC*

1. Introduction

One of the most vital needs for every society, and one of the most crucial components of any commercial enterprise, is reliable access to electrical power. Population growth and economic development will drive rising demand for energy in the next decades, as will the emergence of new economic sectors supported by those investments. Household, lighting, communication, industrial, and other uses of electricity all play significant roles in people's daily lives.

Electricity is a decisive factor in bettering the welfare of the community in the contemporary era, especially in the information technology sector. It is closely tied to the growth of industrial technology, which goes hand in hand with the development of technology for communal progress.

In South Kalimantan, Barito Kuala Regency, Marabahan Kota, and other outlying locations, energy distribution is hampered by a lack of public information about installing new electricity in residential areas. Accordingly, many people encounter difficulty applying to have electrical power installed or changed because of the remote location of their residences. Therefore, there is a demand for an online application that explains installing or changing electrical power for those unfamiliar with it.

Indah Marabahan Electric Outlet encounters issues as the company still relies on manual data input using Microsoft Word to create new customer applications for energy installations and power changes. It results in a backlog of requests from customers, and it will not be easy to locate customer files if a report has to be generated. Hence, a web-based electricity customer service application should be developed to facilitate this outlet in establishing customer application data for new electricity installation or changing electric power and searching for customer data when making a resume to be submitted to the PLN office.

Developing this web-based application offers several advantages. To begin with, the study's findings are expected to ease energy installation across Indonesia for IT purposes.

Additionally, it can be utilized as a thoughtful contribution for IT professionals working in energy institutions to enhance services, making it much easier for the community to install new electricity.

In his research entitled “Sistem Informasi Pemasangan Listrik Baru Berbasis Web Pada PT Chaputra Buana Madani Bandar Jaya Lampung Tengah” This study aims to develop an installation information system new web-based electricity, based on the results of research on information systems installation of new electricity at PT Chaputra Buana Madani, then you can This means that with a new electrical installation information system. This web-based, can minimize the queue of applicants at the time of registration installation of new electricity, as well as assisting PT Chaputra Buana Madani in manage data on new electrical installations to avoid expensive data and difficulty when searching for data [1].

In research that entitled “Perancangan Dan Implementasi Sistem Informasi Pemasangan Baru” this study aims to compute the system. In a new electrical installation system, the admin inputs data applicant who wants to install new electricity in his house for free automatically to the database and make it easier for admins to find data later day [2].

In their research entitled “Pengembangan Sistem Informasi Penyambungan Baru Listrik Khusus Pelanggan Getting Electricity Berbasis Web Pada PT.PLN (Persero) Distribusi Jawa Timur Area Gresik” this research aims to develop a tool in the form of an information system in which there are functions function that can track the progress of the electrical connection process for each customer so that they can help with problems that occur in the process of new electrical connections [3].

In his research which entitled “Sistem Informasi Pelayanan Puskesmas Berbasis Web” this study aims to provide an alternative problem solver in the system registration and collection of numbers for patients. By creating this website, Patients can easily view information about existing doctors' schedules as well as information related to health centers. With this website you can improve effectiveness and efficiency in terms of service, time and cost at the health center. Computerization can be an alternative solution of solving problems in processing registration data and taking queue numbers patient [4].

In his research entitled “Sistem Informasi Layanan Pelanggan Berbasis Web Di PDAM Kabupaten Grobogan” this research aims to design a customer service information system for facilitate customers in registering water connections, delivering complaints and make it easier for customers to obtain information on billing accounts that can be accessed easily using the internet. which system built is expected to provide easy access to data administration meter in meter recording so that the results of inputting billing data latest faster [5].

In his research entitled “Sistem Informasi Pelayanan Publik Berbasis Web Pada Dinas Pekerjaan Umum Kabupaten Kampar” this research aims to facilitate the public in submitting complaints related to the condition of roads and bridges in Kampar district. Information Systems This public service helps employees in managing complaint reports, repair, and construction of roads and bridges. This system can provide information to the public about the activities of the Department of Highways and assist employees in mapping the condition of roads and bridges in the Regency Kampar [6].

In his research entitled “Sistem Informasi Eksekutif PT.PLN (PERSERO) Sumedang Rayon Tanjungsari” this research aims to produce a system capable of assisting the executive in the decision-making process. PT.PLN executive information system (Persero) Sumedang Rayon Tanjungsari can provide information regarding the number

of subscribers who register and use based on certain categories. Information on the number of customers in the information system includes the number of customers by region each year, the number of customers based on the period each year, the number of customers based on each power year, the number of customers based on payments each year and the amount installation of electricity every year, the number of customers by region with certain categories every month [7].

Information system is a system within an organization that meet the daily transaction processing needs that support the function managerial organization in the strategic activities of an organization to be able to provide certain external parties with the necessary reports [8].

According to "The web is a type of connectedness collection service with documents stored on the internet and accessed using protocol (HTTP) HyperText Transfer Protocol which will generate the facility information or documents that can be accessed, can be in the form of data, text, images, sound, videos with an internet web browser needed to write addresses on the internet Explorer, Netscape, Opera, Mozilla Firefox, and Google Chrome [9].

Php MyAdmin is an important software in database management by using MySQL (SQL language). As the name implies this phpMyAdmin written in the PHP programming language. It was also discussed that phpMyAdmin specifically handles database management within the scope of the website (World Wide Web). It's the same with MySQL, the software that was first released in 1998 as well licensed GNU (General Public License) and already supports multilingual (multilanguage) in the user interface [10].

2. Method

The development of a system requires a method that functions as a reference. The system development applied the Software Development Live Cycle (SDLC) method of the Waterfall model.

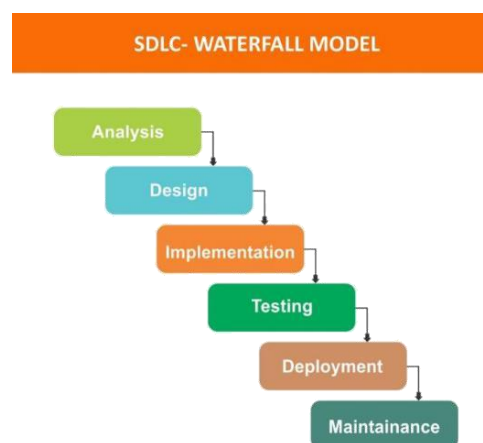


Figure 1 Application Development Flowchart

Analysis, design, implementation, evaluation, and development were all steps in the Waterfall model. This study included the waterfall model's iterative steps into development. Due to the limited scope of this research, the following procedures were only performed during the testing phase.

2.1. Analysis

2.1.1. User Analysis

The to-be-created application was accessible to registered users (administrators) with full entry rights. Users could only apply for an installation, change the electric power, confirm the submission, edit their profile, and change their password.

2.1.2. Requirement Analysis

Requirements for the design and implementation of this application were accomplished by observing how the outlet's administrators processed requests from customers who wished to apply for a new electrical installation and change their electric power. The observation on the requirements unveiled that the web-based electricity customer service application should have the following features.

1. A login and registration page to validate the users (customers and administrators)
2. A page to change the password for users
3. A page to apply for a new installation of electricity
4. A page to apply for changes to electric power
5. A page to edit and cancel the submission from the customers
6. A receipt printed after completing payment on the user page
7. A confirmation page for payment submission of new installations and changes to electric power for customers
8. An add customer function on the administrator page
9. A payment confirmation page for installing new electricity and changing electric power on the administrator page
10. A receipt print page for customers on the administrator page
11. A customer delete function on the administrator page
12. A page for submitting new installations and changing power directly connected to the PLN database on the administrator page
13. A setting to change the web name on the administrator page
14. A setting to change the office address on the administrator page

2.2. Design

This stage produced an overall system and determined the software flow.

2.2.1. Implementation

The implementation stage is a sequence of continuation of system design activities. It generated a web-based application that could operate properly. The implementation strategies consisted of (1) hosting the developed web-based application of the electricity customer service and (2) adding additional features to the application to make it more comprehensive.

2.2.2. Testing

At this point, the modules created were integrated. Testing was performed to determine the software's appropriateness with the design and functionality of the application, and problems emerged. A functional test was utilized in application development to acquire information and evaluate the system's quality. It was carried out by monitoring the implementation results through testing data and validating the software's functioning. The

test concerned the application's ability to (1) store, add, edit, and remove data for new electrical installation proposals and changing electric power and (2) calculate the overall cost of installing new electricity and changing electric power.

2.2.3. Activity Diagram

This installation information system's activity diagram depicts the workflow of a system and activities carried out by the new energy installation information system and add power at PT Wijaya Kusuma Marabahan Barito Kuala South Kalimantan.

3. Results

3.1. Implementation of the User Interface Page

The results of the designed and implemented user interface design for the web-based system application of the electricity customer service are as follows.

3.1.1. Homepage Display

Figure 2 portrays the homepage where users (customers and administrators) opened the web address.



Figure 2 Homepage

3.1.2. Login Page Display

Figure 3 depicts the login page display where users should enter their usernames and passwords to access the application.

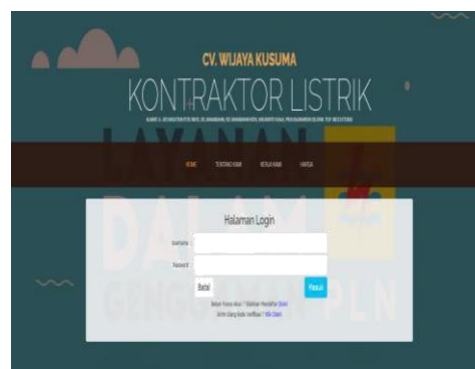


Figure 3 Login Page

3.1.3. Registration Page Display

Figure 4 illustrates the registration page. Customers could access the registration page via a menu and sign up to begin new installations or power changes.

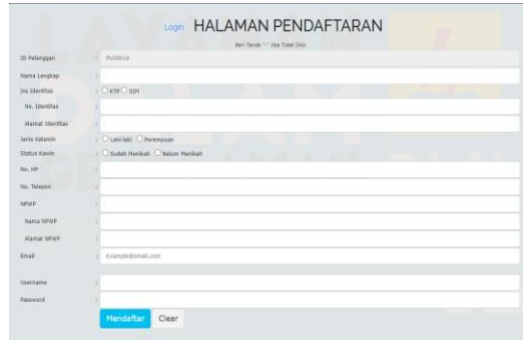


Figure 4 Registration Page

3.2. Customer Main Page Display

Upon logging in, the customers were taken to the page serving as the main page. Figure 5 depicts the customer main page display.

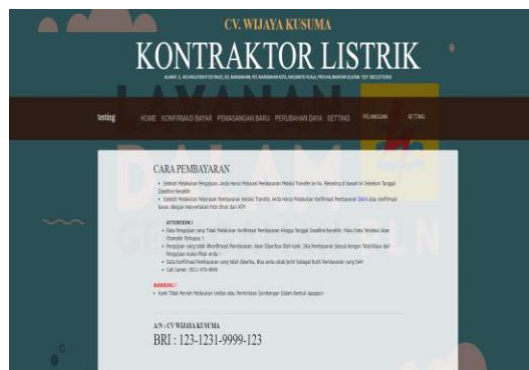


Figure 5 Customer Main Page

3.3. Administrator Main Page Display

Figure 6 demonstrates the main page display of administrators after logging in.

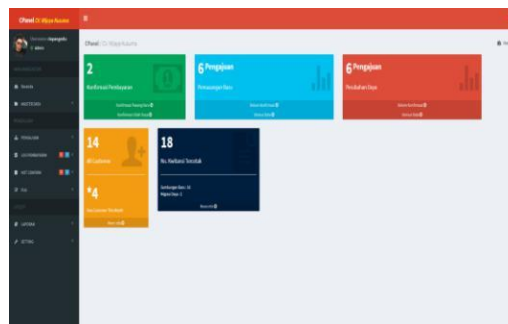


Figure 6 Administrator Main Page Display

3.4. Page Display of PLN New Installation Submission

This new connection submission page was directly connected to the PLN database and allowed the administrators to fill in customer information for newly submitted installations. Figures 7 and 8 exhibit the new connection submission page display.

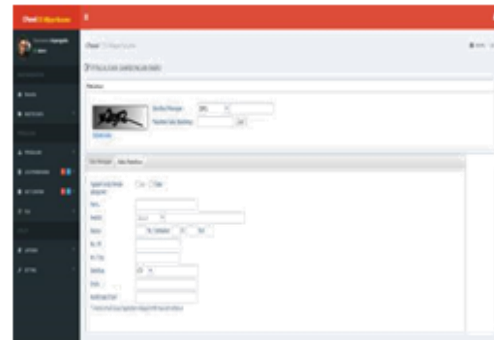
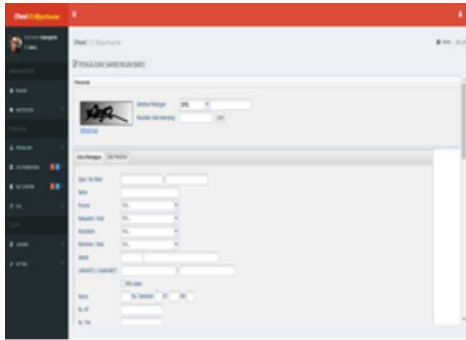


Figure 7 Page of New Installation Applications Figure 8 Page of New Installation Submission

3.5. Page Display of PLN Power Change or Migration Submission

This power change or migration request page was directly linked to the PLN database and allowed the administrators to enter customer information for those who had requested a power change. Figures 9 and 10 depict the page display of the power change or migration submission.



Figure 9 Power Change Submission Page of Customers

Figure 10 Power Change Submission Page of Applicants

3.6. Page Display of Editing Customer Profile

Figure 11 exhibits the page for editing customer profiles, allowing customers to modify their data.

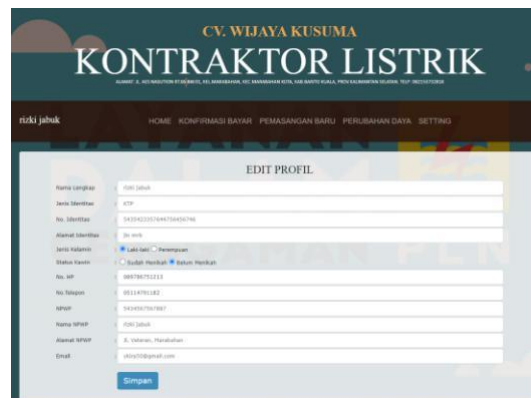


Figure 11 Editing Customer Profile Page

3.7. Regency and District Dropdown Display

Figures 12, 13, 14 illustrate that the regency and district dropdown page was located on the new installation and change power page of customers and administrators. It allowed them to easily select the area where electricity would be installed and the electrical power would be changed.

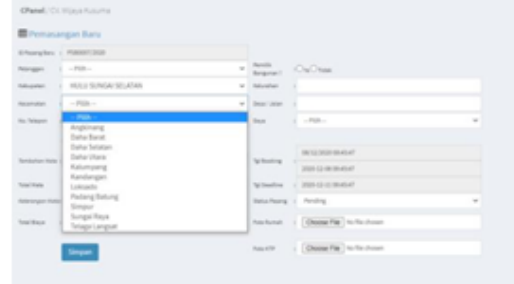


Figure 12 Regency Dropdown (Customers)

Figure 13 District Dropdown (Customers)

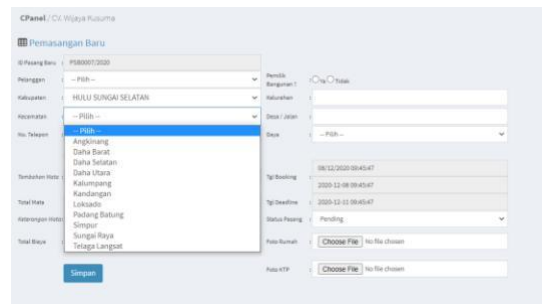


Figure 14 Regency and District Dropdown (Administrators)

4. Conclusion

Testing the electricity customer service information system generated the following conclusions. The electricity customer service information system for the Indah Marabahan Electric Outlet was successfully created. The application operated appropriately, and no data anomalies were discovered while modifying data in the newly constructed database. The web-based electricity customer service information system could produce reports, including payment and customer resume information.

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