

# Design of Application on a Gas Payment System at a Public Company in Balikpapan

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**Abstract**— This study aims to find out how to create and process a Gas Network Customer Data Information System at the Manuntung Sukses Regional Public Company, Balikpapan City based on VBA Excel. The object of research is the Manuntung Sukses Regional Public Company, Balikpapan City. Data collection techniques are interviews, direct observation and library research. The analytical tools used are Business Processes, Entity Relationship Diagrams (ERD), Data Flow Diagrams (DFD) and Microsoft Excel Macro VBA program commands. The results showed that the Microsoft Excel application can process input data effectively and efficiently.

**Keywords**— Gas Network, Macro VBA, Microsoft Excel.

## I. INTRODUCTION

The development of the times is increasing very quickly, as well as the development of technology which is currently experiencing a lot of improvement. With the increase in this technology system, many companies are using technology as one of their information systems. Why do they use information systems? Because in carrying out its business activities the company involves many parties, not only parties within the scope of the company itself, but also parties from outside the company. Due to the large amount of data that enters the company, a system is needed that can provide an explanation of their business development, without this information system, the company will have difficulty controlling the development of the business they run.

Recording is the activity of moving data into a book or paper or entering data into a computer [1]. Data is raw facts and then managed to produce information that is important for a company or organization [2]. A computer is an electronic device that can perform several tasks such as receiving input, processing input, and storing orders, and providing output in the form of information [3].

Based on the above understanding, it can be concluded that if companies use computers in data processing, the time they need is relatively shorter than using manual recording. In addition, the company can also easily access the data that has been inputted quickly and precisely. However, the use of computers alone is still not effective enough to be used as a data processing tool, therefore a system is needed to assist computers in processing large amounts of data.

Manuntung Sukses Public Company is a Regional Public Company regulated by the Balikpapan City Regulation Number 4 of 2018 and is a Regional Owned Enterprise (BUMD) whose entire capital belongs to the region. Perumda aims to provide benefits for regional economic development,

provide public benefits in the form of providers of goods and/or services, and earn profits and/or to increase Regional Original Income. One of its business fields is Gas Network.

Making the application above is expected to help problems that occur in companies such as new installation data, customer complaint data, customer payment data, as well as reports required by related parties, so that the data obtained is found faster and of course more accurate.

The object of this research is Manuntung Sukses Public Company, Balikpapan City, which is located at Jl. Jenderal Sudirman No.225, RT.34, Klandasan Ilir, Kec. Balikpapan City, Balikpapan City, East Kalimantan 76113. The selection of this location is based on the consideration that Manuntung Sukses Public Company, Balikpapan City is a business entity engaged in the service sector but in carrying out its business processes it still uses a manual recording system in terms of.

## II. LITERATURE REVIEW

Computerization is a data processing method with a computer as the main tool [4]. "Information is a data that has been processed into a more meaningful form and useful for recipients to make decisions the present and the future." [5] Visual Basic 6.0 is one of the application programs that is the event drive where the program waits until a response from the user in the form of certain events, e.g., button is clicked, object gets focus and so on [6] [7]. A computer is a special type of counting device that has a definite nature [8]. Microsoft excel is an application program spreadsheet (electronic worksheets). The function of Microsoft excel is to perform calculation operations and be able to present data into the form of Table [9]. Macros can run almost any command present in Excel or programs that support macros or even commands that can be done but you don't know it [10].

## III. RESEARCH METHODS

The type of research used by the author is a qualitative research method, with the method of design and creation. Design and creation is a combination of research methodology and application development methodology. The stages in this method are the planning stage, the analysis stage, the design stage, the implementation stage, and the use stage. However, in this research, the stages used are only up to the design stage which produces an application prototype [11].

### 1. Place and time of research

The place to conduct this research is at the Manuntung Sukses Regional Public Company, Balikpapan City, which was held in May-July 2022.

2. Required Data Details

The details of the data required in the discussion of this report are as follows:

- a. Overview and organizational structure of the Manuntung Sukses Regional Public Company, Balikpapan City
- b. Gas Network Active Customer Data. Application for Gas Network Installation.
- c. Gas network customer usage data.
- d. Gas Network customer monthly payment data.

3. Data collection technique

In writing this research report the author requires the data used to analyze the problem in the preparation of this report. The data collection techniques that the author uses are as follows:

- a. Observation A data collection technique by conducting direct observations at the research location on the transaction process at the Manuntung Sukses Regional Public Company, Balikpapan City through a direct communication process to the Manuntung Sukses Regional Public Company, Balikpapan City which was carried out by interview to get a clear picture of the problems involved, faced, as well as the data needed to conduct research.
- b. Literature Study In this case the author conducts a literature study as a guide and theoretical support from the data the author obtains relating to the completion of the final project, such as collecting books, theses, journals and other supporting theories from the internet related to the problems that the author will raise. into research.

4. Analysis Tool

The analytical tool that the author uses to examine the problems raised [2], then the analysis tool the author uses the work system used in the Microsoft Excel program with Macro and VBA features quoted from the book Accounting Applications with Microsoft Excel VBA (Macro) according to (MADCOMS, 2017, pp. 20-86) and Dewi Nuryani Purnamasanti's Final Project report "Information System Using Macro Microsoft Excel at Aston Hotel Samarinda City" which the author describes about the objects and facilities contained in the analysis tool.

IV. FINDINGS RESEARCH

In this study there are several steps taken by the author to design an application so that the author can present the application as it is now. The steps that the author takes are as follows:

1. Program Listing and Display

In carrying out the application design stage, the authors use sheets as a place to store data and as a place to create the report format needed to design applications. Here is a worksheet that the author uses in the program.

- a. Sheet "Customer" is a worksheet used to store gas network customer data at the Manuntung Sukses Regional Public Company, Balikpapan City.



No	Kode	Nama Pelanggan	Alamat	No Telpon	Tipe Pasang	Tarif Permeter	Meter Akhir
1	7610010001	ZAINAL HAKIM	JL RAMBUTAN RT 19 NO 52	081216221775	RT1	Rp 4.541,00	10
2	7610010002	ABDUL GAFAR L.	JL RAMBUTAN RT 19 NO 52	081216318350	RT1	Rp 4.541,00	15
3	7610010003	HAMIDAH GAFAR	JL RAMBUTAN RT 19 NO 52	081219496485	RT1	Rp 4.541,00	130
4	7610010004	TATANG ZAINUDDIN	JL RAMBUTAN RT 19 NO 52	081219550857	RT1	Rp 4.541,00	0
5	7610010005	LIS DOLIANSYAH	JL RAMBUTAN RT 19 NO 70	081222483287	RT1	Rp 4.541,00	10
6	7610010006	AGUS	JL RAMBUTAN RT 19 NO 70	081222691989	RT1	Rp 4.541,00	0
7	7610010007	AHMAD YANI	JL RAMBUTAN RT 19 NO 73	081222185110	RT1	Rp 4.541,00	17
8	7610010008	SURIAH BUSLI	JL RAMBUTAN RT 19 NO 73	081236768800	RT1	Rp 4.541,00	22
9	7610010009	SUMANTO	JL STRAT III RT 11 NO 67	081242947201	RT1	Rp 4.541,00	15
10	7610010010	BUDI PURNOMO	JL DR SUTOMO RT 12 NO 08	081243240735	RT1	Rp 4.541,00	0
11	7610010011	SUPARTI	JL STRAT II RT 12 NO 09	081244186501	RT1	Rp 4.541,00	15
12	7610010012	HULIOTO	JL STRAT II RT 12 NO 09	081245163990	RT1	Rp 4.541,00	19
13	7610010013	MUHAMMAD AGUS	II STRAT II RT 12 NO 10	081248104744	RT1	Rp 4.541,00	0

Figure 1 Customer Sheet (Source: Data processed 2022)

- b. Sheet "Usage" is a worksheet used to store data on Gas Network Customer Usage at the Manuntung Sukses Regional Public Company, Balikpapan City



Figure 2 Usage Sheet (Source: Data processed 2022)

- c. Sheet "Payment" is a worksheet used to store data on Gas Network Monthly Payments at the Manuntung Sukses Regional Public Company, Balikpapan City



Figure 3 Payment Sheet (Source: Data processed 2022)

- d. Sheet "Receipt" is a worksheet that is used to store data on the gas network Monthly Payment Receipt at the Manuntung Sukses Regional Public Company, Balikpapan City.



<b>PERUMDA Manuntung Sukses Kota Balikpapan</b> Jl. Jenderal Soedirman No. 225 Klandasan Ilir Balikpapan 0542 5800 321				
Kode Pelanggan :	7610010284	Tahun :	2022	
Nama Pelanggan :	PAULUS RANTE MALIMO	Bulan :	Juli	
Tipe Pasang :	RT1	Tanggal Bayar :	22/08/2022	
Meteran Awal	Meteran Akhir	Total Pakaian	Harga Permeter	Total Bayar
0	20	20	Rp 4.541 Rp	90.820
Balikpapan , 22 August 2022 Bagian Administrasi				<b>Total Bayar : Rp 90.820</b>
HARTATI				

Figure 4 Receipt Sheet (Source: Data processed 2022)

## 2. Userform Design

Userform is one of the facilities contained in excel macros that can be used to input data into sheets that have been prepared in advance. Some of the controls required by programs such as the Command Button for data input processes and other controls can be placed on a userform. To clarify the program designed by the author, the author will describe how the work of each userform in the program.

Based on Image, *userform design* is used to input customer data using the Gas Network. Facilities used in This userform is the "Save" button which is used to add new customer data where in this case the customer number will be automatically filled in according to the customer data that is in the Customer sheets, the "Delete" button which is used to delete the data that has been filled into the sheets Customer. the "Finish" button is used to exit the Customer Userform and return to the Main Menu Userform, the "Update" button is used to update the data in the Customer sheets according to the data displayed in the Customer Userform.

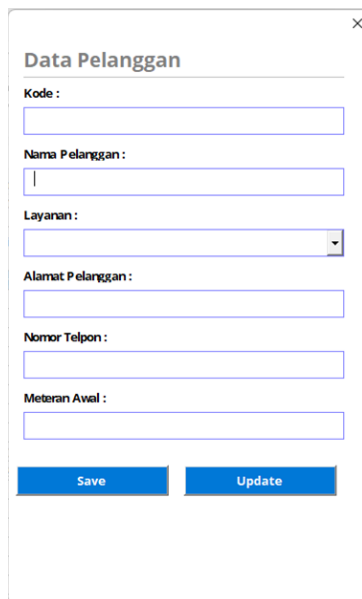


Figure 5 Customer Userform  
(Source: Data processed 2022)

### 2.1 Userform "Usage"

Based on Image, *Userform usage* is used to input data on monthly usage payments for Gas Network subscribers. Facilities used in This userform is the "Save" button which is used to process the gas usage data per new month where in this case the usage number will be automatically filled in according to the usage data in the Usage sheets, the "Delete" button which is used to delete the data that has been entered. filled in the Usage sheet. the "Finish" button is used to exit the Usage Userform and return to the Main Menu Userform, the "Update" button is used to update the data in the Usage sheets according to the data displayed in the Usage Userform.



Figure 6 User Form Usage  
(Source: Data processed 2022)

### 2.2 Userform "Payment"

Based on Figure, *Userform this* used to input data on monthly payments for the Gas Network. Facilities used in This userform is the "save" button which is used to process the monthly payment data where in this case the payment number will be automatically filled in according to the payment data in the Payment sheets, the "Delete" button which is used to delete the data that has been filled in. Payment sheets. the "Done" button is used to exit the payment Userform and return to the Main Menu Userform, the "Update" button is used to update the data in the payment sheets according to the data displayed on the Payment Userform, the "Pay" button is used to process payment data and provide payment information. command to "Print" payment receipt



Figure 7 Payment Userform  
(Source: Data processed 2022)

As for when the "Pay" button in the image above is clicked, a window will appear *print preview* in the image below.


 <b>PERUMDA Manuntung Sukses Kota Balikpapan</b> Jl. Jenderal Soedirman No. 225 Klandasan Ilir Balikpapan 0542 5800 321					
Kode Pelanggan :		7610010284	Tahun : 2022		
Nama Pelanggan :		PAULUS RANTE MALIMO	Bulan: Juli		
Tipe Pasang RT1			Tanggal Bayar : 22/08/2022		
Meteran Awal	Meteran Akhir	Total Pemakaian	Harga Permeter	Total Bayar	
0	20	20	Rp 4.541	Rp	90.820
<b>Balikpapan, 22 August 2022</b>					<b>Total Bayar : Rp 90.820</b>
Bagian Administrasi					
HARTATI					

Figure 8 Receipt of payment  
(Source: Data processed 2022)

### 3. Application Program Usage

In this section the author will explain about the program that the author has made starting from how to use the program to the minimum requirements that must be met to be able to operate the program. Below is the explanation:

#### 1. Program Usage

This program was created to be used in inputting gas network customer transactions at the Manuntung Sukses Regional Public Company, Balikpapan City. This is intended so that recording errors made when inputting transactions can be minimized and to make it easier for program users in organizing data.

To find out how to run this application program, the author will describe the steps using the Microsoft Excel program, namely clicking the start button on windows and opening the Microsoft Excel program, then clicking the file open menu, looking for the program file option and clicking open. After the program file is opened, a dialog box will appear where the user will later make a choice whether to activate macros or not then select or click the enable macro button. Open files will be marked with the main menu appearing. The initial display when opening the program is the Main menu. After entering the main menu, employees can select several menus. To return to the menu, click the Menu Button located on each form. To end this application program, select the Exit Button on the Menu.

### 2. Program Validation

Employees who can use this application are employees who are registered in the gas network division at the Manuntung Sukses Regional Public Company, Balikpapan City.

### V. CONCLUSION

Based on the descriptions in the previous chapters, the authors conclude that the application of the gas network customer data information system at PERUMDA Manuntung Sukses Balikpapan City can be created and implemented using Microsoft Excel macro. The benefits of implementing Macro Microsoft Excel on this information system include simplifying customer data collection, new installations and disconnection of gas. The speed and accuracy of data access makes it easy to make reports needed by company employees. It also minimizes errors that usually occur when doing it manually.

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