



Design and Implementation of Gereja Kristen Sumba Jemaat Wulla Financial Management Information System

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Abstract

Gereja Kristen Sumba Jemaat Wulla is a church under the auspices of the Sumba Christian Church Synod which was founded on November 4th, 2015 and has a Congregational Council Working Body (BPMJ) structure managed by Rev. Ina Margaretha, S.Th as chairman and assisted by Yuliana Atakuni (deputy), Rina Ana Wulang (secretary), and Amelia Lima (treasurer). As an institution that manages finances collected voluntarily from the public, accountability and transparency are needed in its administration and management. The problems at the Gereja Kristen Sumba Jemaat Wulla are quite complex because the management of financial data is still recorded in a book which causes the management process to take a long time, it is not properly recorded, and there is a possibility that the book will be damaged or lost, the assessment is inaccurate, and errors often occur when recapitulating the data. In building this system, the Waterfall method is used, in which there are stages including Requirements Analysis, System Design, Writing Program Code, Program Testing, Program Implementation and Maintenance. From testing using the System Usability Scale (SUS) had given result 85 score, indicating that the financial management information system created was suitable for use with acceptability ranges of "Acceptable" and range of "High". With the grade scale is in class "B", the adjective ratings "excellent". These results indicate that the church financial management information system can be accepted by its users. This system can make it easier for church treasurers to collect data and increase the accuracy of church income and expenditure data.

Keywords: Church, Financial Information System, Website, Waterfalls

1. Introduction

The development of technology in this era of globalization provides many benefits in various social aspects. The growing need for fast and accurate information is also necessary. Computers are proof of the development of this technology, almost every field of life has used computers as work aids, starting from education, government, the business world and in organizations. However, in some institutions or organizations, the use of information technology is limited to typing, therefore a strategy is needed to continue to progress and develop, one of which is the use of information systems. With current technological developments, churches are also required to utilize technology to reduce or even eliminate delays and difficulties in managing financial data. Various types of technology can also be implemented in church financial management. With the increasing development of internet media, many people use it for all their needs, for example in work which currently requires information technology which requires a fast and precise data management information system. Therefore, the role of information systems is very dominantly needed. The need for information and the increasing use of information technology has encouraged the formation of an information system that can make certain jobs easier.

The development of technology and the need for information systems has led to an increase in the complexity of information that must and can be processed, so that the need to use information systems is increasingly necessary. The public's need for information is very great, including information about churches around them.

Administrative and financial systems related to data processing are important for agencies, health institutions, government institutions and religious institutions such as churches. A church is a building or house where Christian religious prayers and ceremonies are held in which there is a body (organization) of Christians who share the same beliefs, teachings and procedures for worship. As an institution that manages finances collected voluntarily from the public, accountability and transparency are needed in its administration and management. Therefore, professional financial data management is a requirement that must be met to carry out church activities well. One system that exists in the organization is the management of church income and expenses.

Gereja Kristen Sumba Jemaat Wulla is located at Jl. Raya Melolo-Waijelu Wulla Village, District. Wulla Waijelu, East Sumba Regency, East Nusa Tenggara. Founded on November 4 2015 and since its founding this church has had a Congregational Council Working Body (BPMJ) managed by Pastor Ina Margaretha, S.Th as chairman and assisted by Yuliana Atakuni (deputy), Rina Ana Wulang (secretary), and Amelia Lima (treasurer). This church has become the center of religious activities for the Christian community living nearby. Many of the activities carried out are not only religious activities but also social activities such as commemorating Christian holidays. The church's

financial income is obtained from weekly offerings with seven levels of offerings, including church, special offerings, service, construction, maintenance, household Bible reading, while other income is obtained from tithes, monthly fees, end-of-month specials, thanksgivings, synod operations, youth, donations, PMK, assembly bible reading and development auction. Church finances are calculated every week and announced to congregation members every Sunday and the recording process is carried out every month. Church finances are managed by the church treasurer. Gereja Kristen Sumba Jemaat Wulla records its finances by writing them in a book, which takes a long time to book, there is a risk of errors in entering data or the loss of the financial recap book. Current technological developments are urgently needed to help make it easier and produce accurate data and speed up the management of church financial income and expenses.

Therefore, the way to reduce errors and speed up the time for recording income and expenses should be improved by using a system that can produce financial reports on church financial management to make it easier for the church treasurer to convey church financial information to congregation members, as well as to design a system that easy to use and can collect data accurately. The designed information system space contains admin data, income data, expenditure data and printed income and expenditure reports. Meanwhile, the tools used to build this system are the PHP programming language with a MySQL database.

2. Research Methodology

In conducting research, there are several stages in which the researcher will carry out modeling or variations in the system design process that will be built at the Gereja Kristen Sumba Jemaat Wulla. The following is an overview of the stages carried out by researchers.



Fig 1: Research flow

In preparing this thesis, accurate data and information is needed as material that can support the truth of the description and discussion material. Therefore, before preparing this thesis, research or research was carried out first to obtain the necessary information and data. The data collection techniques required for this thesis are as follows:

1. Observation
By observing, collecting and studying and recording directly about the financial management system at the Gereja Kristen Sumba Jemaat Wulla up to the stage of making a report. In this method, every data is recorded directly, so that it can produce precise information.
2. Interview
Interviews were conducted to find out the actual problems that occurred in this research. The interview process was carried out by asking questions directly to the church treasurer.
3. Documentation
In this research, documents are very supportive in obtaining data to complement primary data for research perfection. Matters relating to documents in the form of reports and records held by the relevant treasurer. Supporting documents used are:
 - a. Treasurer's summary book
 - b. Weekly announcement book
 - c. Monthly report book

System design is designing and designing a system well, which contains elements that build data processing processes and procedures to support the creation of system operations. The stages that will be carried out in system design are creating UML, interface design, implementation and testing.

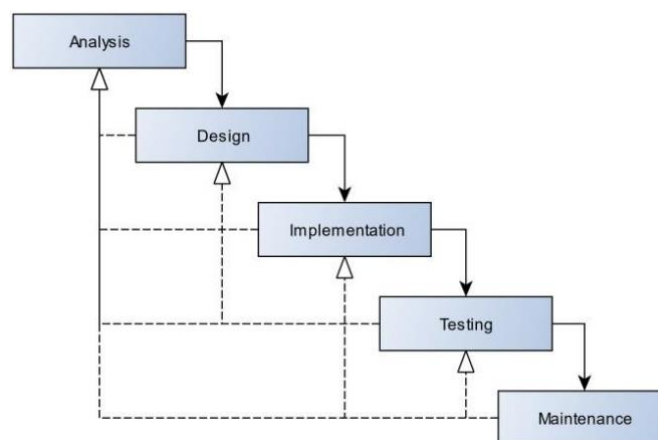


Fig 2: Image of the waterfall method cycle.

Waterfall Method Stages:

1. Needs Analysis
This step is an analysis of system requirements. Data collection at this stage can involve conducting research, interviews or literature studies. The system analyst will extract information from the user so that a system scheme can be created that can carry out the

required tasks. This stage will produce a user requirements document or be able to express it into data that is related to the user's expectations in creating the system. This document is a reference for the analysis system to translate into programming language.

2. System Design

The stage where ideas are carried out and system design is carried out on solutions to existing problems using system modeling tools such as data flow diagrams, entity correlation diagrams, structure and language data.

3. Writing Program Code

Writing program code or coding is a translation design in a language that can be recognized by a personal computer. Performed by a programmer who will translate transactions requested by the user.

4. Program Testing

The final stage in which the new system is tested for its capabilities and errors results in system deficiencies and weaknesses which are then re-assessed and repaired to make the software better and more perfect.

5. Program Implementation and Maintenance

The application of the system that has been created is a logic system implemented in a structured computerized system (program) so that it can provide the user with an idea of how to run the program in order to produce the desired data. Then software maintenance is the process of repairing, completing and perfecting the software because there are still deficiencies in the software or because new needs arise.

3. Testing and Analysis

Interface implementation is an explanation of the appearance of the system and application, as well as the use and function of each existing form. The website-based implementation of the financial management information system at the Wulla Congregation of Sumba Christian Church is in accordance with the system design previously explained in the form of the system page display. To explain the form of interface implementation, below is an explanation and function of each display created.

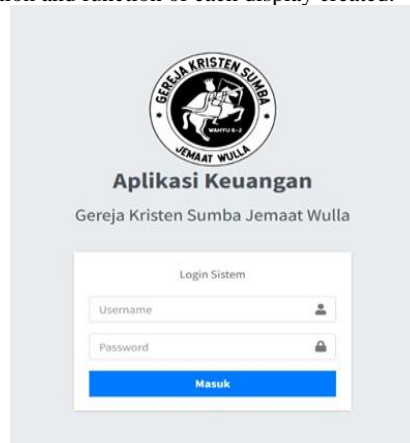


Fig 3: Login page display

Figure 3 shows the login page display, this page functions as the admin login page, where the admin must log in by filling in the username and password. If the login is successful, you will continue to the website page, and if the login fails, a statement of login failure will appear.

3.1. Admin Main Page Interface Display

The following is a display of the main admin page on the church financial management information system.



Fig 4: Home page display

Figure 4 is a display of the home page or basic menu to display the main menus in the system which can be used to manage dashboards, church finances and financial reports. Admins can choose the menu they want to use.

3.2. Church Financial Income Interface Display

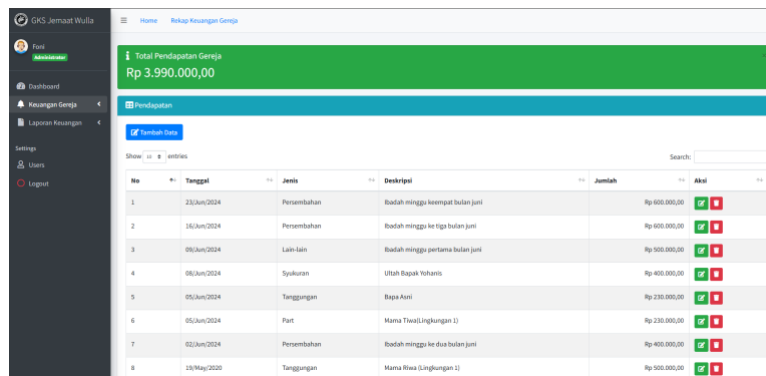


Fig 5: Income display

Figure 5 shows the interface of the church's financial income page where the admin can see details of the church's financial income in the form of a table as well as the total financial income of the church and the admin can add income data by pressing the add data button.

3.3. Page Interface Display Add Church Financial Income

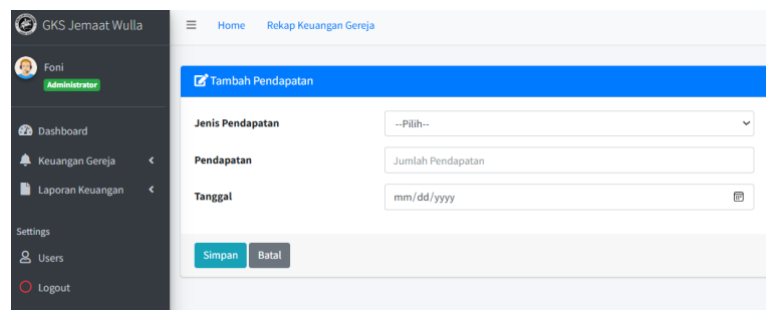


Fig 6: Added income display

Figure 6 shows the interface of the page for adding church financial income where the admin can add financial income by inputting details, income and date of income. If the data is correct, the admin can press the save button so that the data is saved.

3.4. Menu Display Edit Church Financial Income

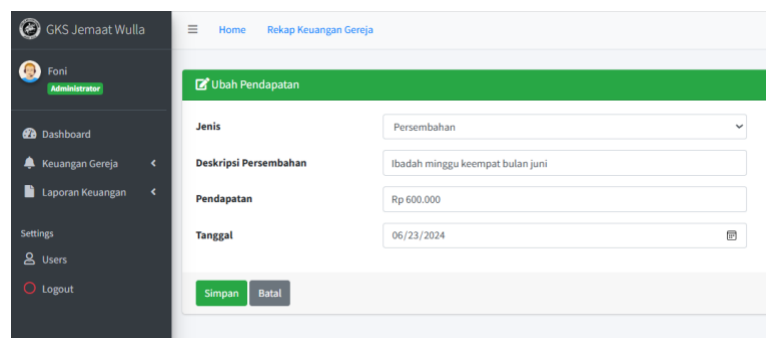


Fig 7: Income edit display

Figure 7 shows the interface of the church financial income editing page where the admin can change financial income by editing details, income and date of income. If the data is correct, the admin can press the save button so that the data is saved.

3.5. View Clear Church Financial Income

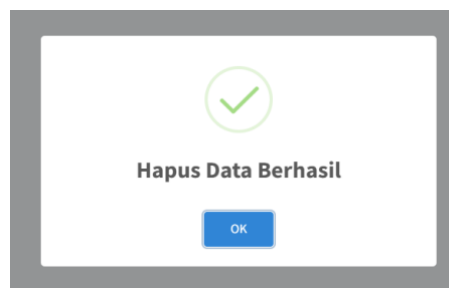


Fig 8: Delete church financial income record

Figure 8 shows the interface of the menu page for deleting financial income, where the display on the menu page for deleting financial income is only a warning box that says whether you are sure you want to delete the data, "no" then it will return to the church income menu, but if "yes" then the data is will be deleted permanently.

3.6. Church Financial Expenditure Page Interface

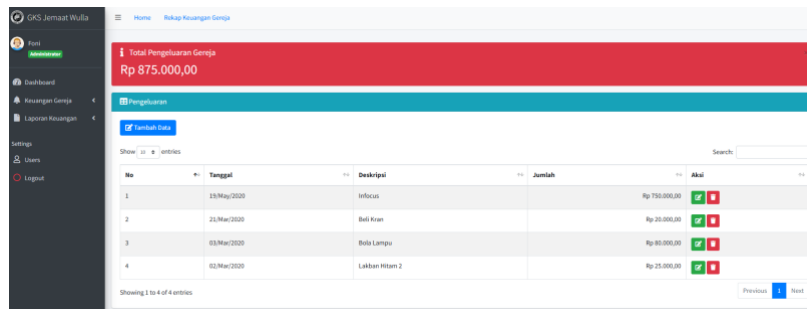


Fig 9: Expenditure page

Figure 9 is a display of the church financial expenditure page interface where the admin can see details of the church's financial expenditure in the form of a table as well as the total church financial expenditure and the admin can add expenditure data by pressing the add data button.

3.7. Menu Display Add Church Financial Expenditures

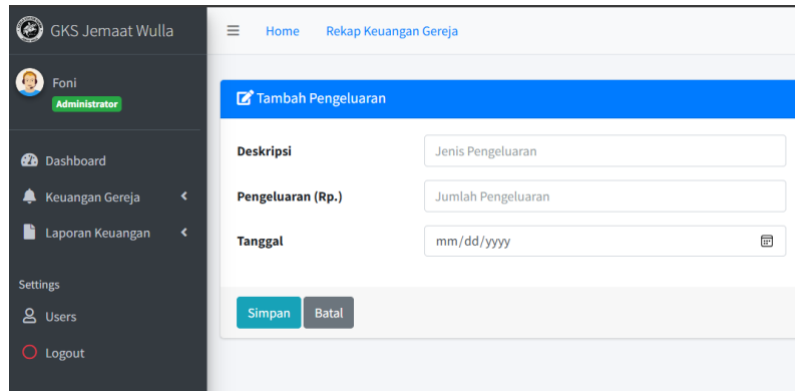


Fig 10: Display of the add expenditure menu

Figure 10 shows the interface of the church financial expenditure page where the admin can see details of the church's financial expenditure in the form of a table as well as the total church financial expenditure and the admin can add expenditure data by pressing the add data button.

3.8. Menu Display Edit Church Financial Expenditures

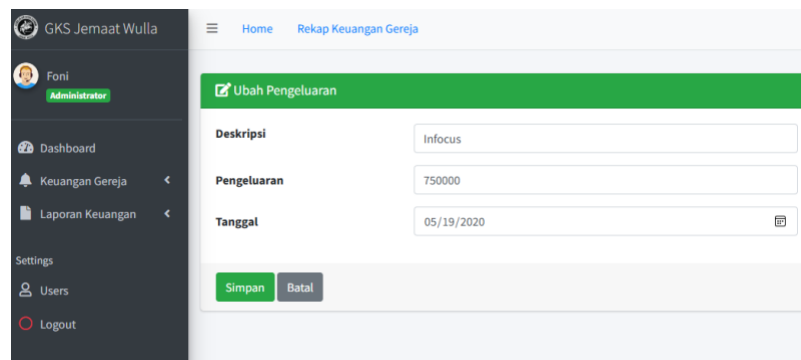


Fig 11: Expenditure edit menu display

Figure 11 shows the interface of the church financial expenditure editing page where the admin can change financial expenditure by editing details, expenditure and expenditure date. If the data is correct, the admin can press the save button so that the data is saved.

3.9. View Write Off Church Financial Expenditures

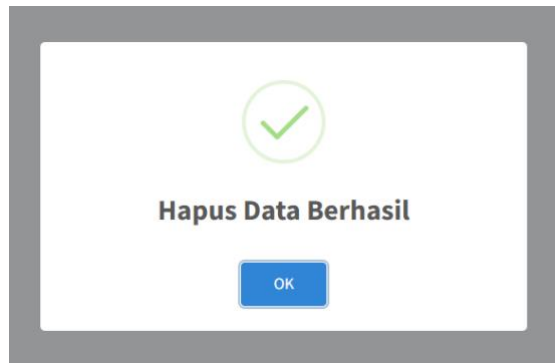


Fig 12: Delete expenses display

Figure 12 shows the interface of the menu page for deleting financial expenses, where the display on the menu page for deleting financial expenses is only a warning box that says whether you are sure you want to delete the data, "no" will return to the church finance menu, but if "yes" then the data will be deleted. will be deleted permanently.

3.10. Church Financial Report Menu Display

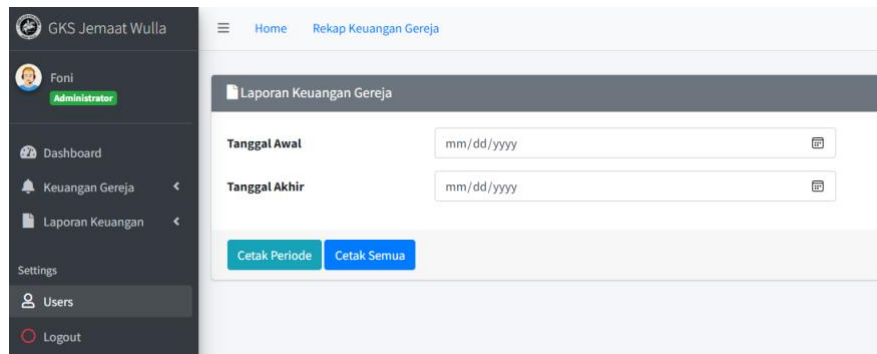


Fig 13: Financial report menu display

Figure 13 shows the interface of the financial report menu page where the admin can view the report by inputting the date of the report to be viewed, then the system will display the report.

3.11. Print Report Menu Display



Laporan Rekapitulasi Keuangan
Gereja Kristen Sumba Jemaat Wulla

No.	Tanggal	Jenis	Deskripsi	Pendapatan	Pengeluaran
1	01-03-2020	B/S/N	Alex (Lingkungan 2)	Rp 200.000,00	Rp 0,00
2	01-03-2020	Lain-lain	Yustin (Lingkungan 4)	Rp 20.000,00	Rp 0,00
3	02-03-2020	Lakban Hitam 2		Rp 0,00	Rp 25.000,00
4	03-03-2020	Bola Lampu		Rp 0,00	Rp 80.000,00
5	03-03-2020	Part	Bapa Anton	Rp 10.000,00	Rp 0,00
6	20-03-2020	Perpuluhan	Sidi	Rp 200.000,00	Rp 0,00
7	21-03-2020	Beli Kran		Rp 0,00	Rp 20.000,00
8	24-03-2020	Syukuran	Syukuran Ulang Tahun Anak Dewi	Rp 100.000,00	Rp 0,00
9	19-05-2020	Tanggungan	Mama Riva (Lingkungan 1)	Rp 500.000,00	Rp 0,00
10	19-05-2020	Infocus		Rp 0,00	Rp 750.000,00
11	02-06-2024	Persembahan	Ibadah minggu ke dua bulan juni	Rp 400.000,00	Rp 0,00
12	05-06-2024	Tanggungan	Bapa Asni	Rp 230.000,00	Rp 0,00
13	08-06-2024	Syukuran	Ultah Bapak Yohanis	Rp 400.000,00	Rp 0,00
14	09-06-2024	Lain-lain	Ibadah minggu pertama bulan juni	Rp 500.000,00	Rp 0,00
15	16-06-2024	Persembahan	Ibadah minggu ke tiga bulan juni	Rp 600.000,00	Rp 0,00
16	23-06-2024	Persembahan	Ibadah minggu keempat bulan juni	Rp 600.000,00	Rp 0,00
Total Pendapatan				Rp 3.760.000,00	
Total Pengeluaran					Rp 875.000,00
Saldo Keuangan Gereja				Rp 2.885.000,00	

Fig 14: Print report menu display

Figure 14 is a display of the financial report print menu page interface. After the admin enters the report date, the system will display a financial recapitulation report.

3.12. System Usability Scale (SUS) Testing

The next test uses the system usability scale method which is a direct test by the user. The following are the results of testing the system usability scale obtained from 1 respondent who is in charge of managing church finances. Table 1 shows the results obtained after testing the financial management information system for 1 respondent with a questionnaire containing 10 statements.

Table 1: Analysis of Results

Questions										Total	SUS Score
1	2	3	4	5	6	7	8	9	10		
4	0	4	4	3	4	4	3	4	3	33	85

Then in table 1, after obtaining the final results from the respondent's assessment, the next step is to determine the grade from the assessment results in virtual reality. Grade Scale is determined according to the average value obtained from the results of calculating the usability scale score system, using the scale used, namely grade A with a score between 90-100, grade B with a score of 80-90, grade C using a score of 70-80, grade D with a score of 60-70, and class F uses a score of 0-60.

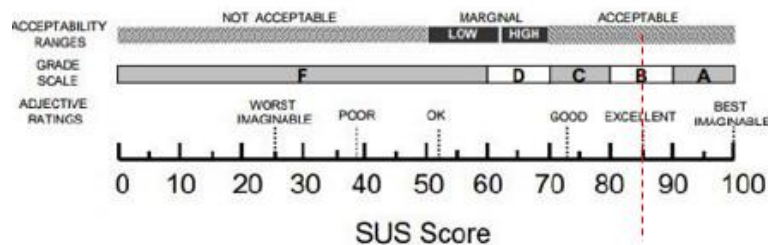


Fig 15: Score on the scale obtained

The average score obtained from the management system that was built was 85, thus the library system received a grade of B when viewed from the standard grade scale in the system usability scale method and was included in the acceptable category according to the acceptability scale range. Therefore, it is best imaginable from the respondent.

4. Conclusion

Based on testing using the black box method on the church's financial management information system, it shows that the application can run according to its function without any errors. Meanwhile, from the results of the System Usability Scale (SUS) test, the treasurer's satisfaction level was 85. The acceptability ranges were "Acceptable" and the "High" range with the grade scale included in class "B" and the adjective ratings "excellent." These results indicate that the church financial management information system can be accepted by its users.

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