

DESIGN AN INFORMATION SYSTEM PENDAWA BULUCINA (RAM) WEB-BASED USING THE WATERFALL METHOD

Rahel Marianti Ritonga¹, Ibnu Rasyid Munthe², Iwan Purnama³

^{1,2,3} Faculty of Science and Technology, Labuhanbatu University, Jln. Sisingamangaraja No. 126 A, Kab. Labuhanbatu, North Sumatera, 21418, Indonesia

E-mail: rahellritongaa0400@gmail.com¹, ibnurasyidmunthe@gmail.com², iwanpurnama2014@gmail.com³

ARTICLE INFO

Article history:
Received: April, 02 2022
Revised: May, 10 2022
Accepted: May, 30 2022

Keywords:
MYSQL and Waterfall Method,
Pandawa Bulucina (RAM), PHP,
Web-Based.

ABSTRACT

Many types of businesses currently use information technology media in the form of applications such as the use of software applications (SOFTWARE) on the weighbridge in RAM Pandawa Bulucina in order to make it easier for palm fruit owners and admins or operators who are in their offices to assess transaction reports. This built application, created using Tools such as Visual studio code as a text editor, php and mysql as a programming language and Database by being designed with a simple flow and interface design using design methods including, context diagram design, data flow diagram as other designs that explain the flow of the application.

Copyright © 2021 Jurnal Mantik.
All rights reserved.

1. Introduction

Along with the times, technology is very influential in meeting the needs of human life and helping humans in completing work in various fields of business.[1]. Computer technology is used to process data, such as processing, acquiring, compiling, storing, and altering data in order to provide quality information, i.e. timely and relevant data to aid in decision-making. Computer technology has a significant impact on the Bulucina Pendawa Palm RAM's operation, one of which is to assist the data processing division in weighing Fresh Fruit Bunches (FFB) of palm oil. RAM is a digital truck scale for weighing oil palms. Digital scales are a form of scale with a higher level of accuracy than traditional (mechanical) scales.[2]. Weigh data is the number generated by the weighbridge when the car and its cargo are weighed..[3].

RAM Pandawa Bulucina is a place to weigh palm fruit, in the process of weighing palm fruit[4]. Palm oil is an industrial plant / plantation that is useful as a producer of cooking oil, industrial oil, and fuel. Oil palm plantations can generate huge profits so that many old forests and plantations are converted into oil palm plantations.[5]. Palm oil is an important industrial crop producing palm oil and industrial oil that increases the Indonesian economy and is very useful in some remote areas of Indonesia.[6]. This company is having issues with mis-recording of weigh numbers, the length of the data processing procedure, and the late submission of reports. The bookkeeping department was late in making payments to farmers and palm oil agents for the procurement of Fresh Fruit Bunches due to the delay in completing the report (FFB). As a result, a more effective and efficient system for weight data processing was created. Data processing systems are weighed to see which are the most effective and efficient, after which the current system is examined and a new computerized system is designed. To increase data accuracy and data processing automation.

Information systems are a component consisting of information technology, processing, storing, analyzing, and disseminating information to achieve the company's goals.[7]. UML is a diagram-based

computer modeling and visual communication language that includes Use Case Diagrams, Activity Diagrams, Sequence Diagrams, and Diagram Classes. [8]. UML is in charge of exhibiting and clarifying the flow of a system that will be constructed using diagrams..[9].

Waterfall is a classic model that has a sequential nature in designing software.[10]. The waterfall method provides a systematic and sequential (step-by-step) approach to software development. The Black Box Testing approach is a test of existing system characteristics that create the required or needed inputs and outputs. The system will be tested using the Black Box Testing concept at this level.[11].

2. Research Methods

The method used in this study is the waterfall method according to Roger S. Pressman.[12]. The research design can be seen in the following image:

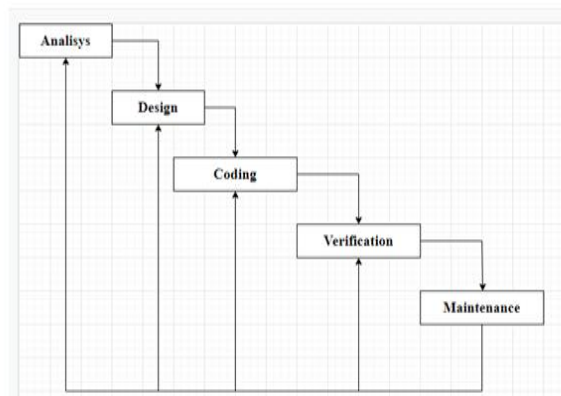


Figure 1. Research Methods

3. Result And Discussion

3.1 Analisis

Research is done at this stage, which includes System Needs Analysis and Analysis, which decides the hardware and software to be employed..[13].

3.1.1 Analysis of System Requirements

The needs of the system utilized by the operator or admin are a Bridge Weigh RAM, based on research that has been done. Pandawa Bulucina Application, which uses PHP and MySQL as its database, was created to help ram determine the number of palm fruit scales and to make it easier for operators to generate transaction outcomes.

3.1.2 Hardware and Software Analysis

Research conducted based on field data needs for Hardware and Software.

- Hardware
The necessary hardware is as follows: Computer, Printer, Keyboard, Mouse
- Software
The software needed is as follows: Windows 10 sebagai system Operasi, Browser Berfungsi untuk menjalankan Aplikasi.

3.1.3 Information Systems Flow

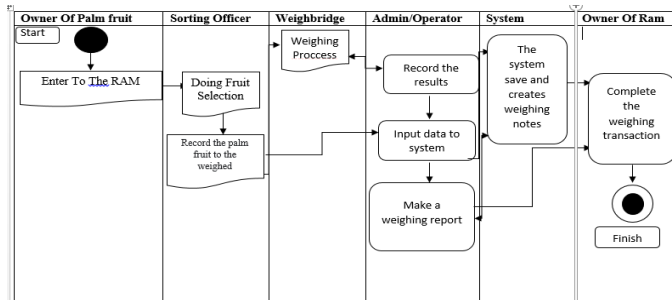


Figure 2. Information Systems Flow

The flow of the Fruit Owner Information System and reaching the stage of calculating fruit transactions based on the price of fruit per kg, which can change at any time, therefore the price is determined by Indonesia's national pricing. RAM additionally receives a 3.5 percent reduction during the weighing process due to the weight of the vehicle being used.

3.1.4 Context Diagram

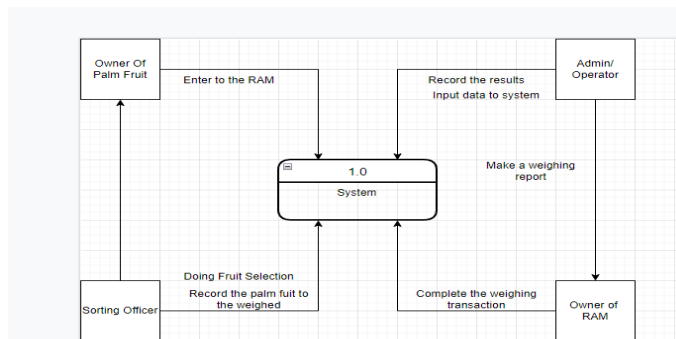


Figure 3. Context Diagram

The context diagram depicts how the RAM work process is carried out. This explanation is nearly identical to the legitimacy of previous diagrams.

3.2 Design

The stage of creating the design of the system to be developed is known as system design. The author creates a design for a data processing system that will be created based on the findings of the previous stage's investigation. The UML model was used to create this system design (Unified Modeling Language). [14].

3.2.1 Login Page Design

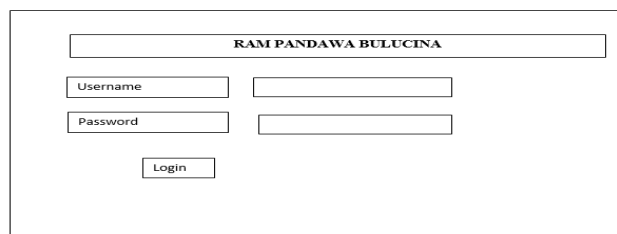


Figure 4. Sign-in page design

In the design table above, it is explained that in the login view there will be several forms such as Username and Password forms that will be filled in. Above the form there is also a Company Name that uses this application, namely "RAM PANDAWA BULUCINA".

3.2.2 Home Page Design

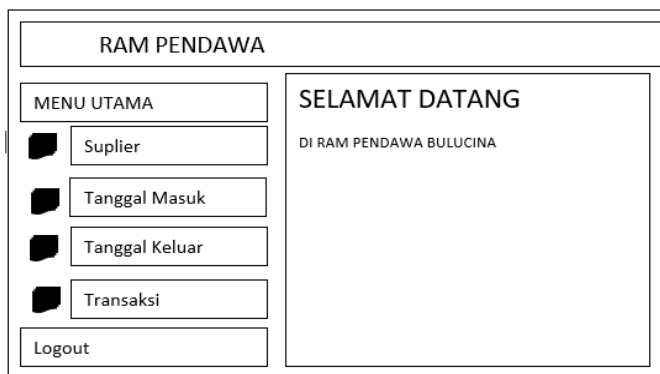


Figure 5. Home Page Design

The above design also explains the application's interface, which includes various menus, including Supplier, Entry Date, Exit Date, Transaction, and Logout. The name of the company appears on the menu, and the text "WELCOME TO RAM PANDAWA BULUCINA" appears next to it to greet RAM app users.

3.2.3 Login Page View

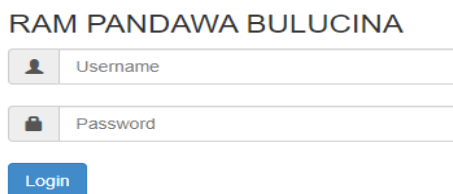


Figure 6. App Login Page View

Figure 6: View the start page while the application is executing. This login menu appears to include a username and password that must be entered in order to access the system. To input the username system, which is filled with admin data, and then the password, which is also filled with admin data. If the system is correct, it will appear in the system's main menu, and if it is incorrect, it will return to the login halaman display.

3.2.4 Main Menu View

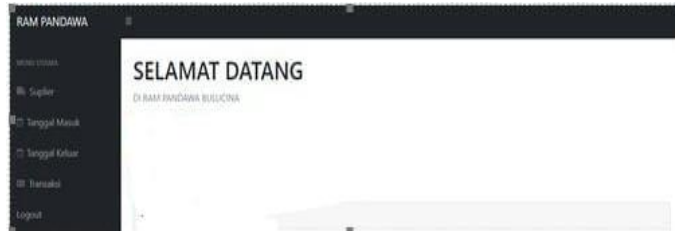


Figure 7. Main Menu View

Figure 7: After logging in, begin viewing the page. There are various options for controlling the system in this primary menu, including Supplier Menu, Entry Date Menu, Entry Date Menu, Transaction Menu, and Logout Menu.

3.2.5 Supplier Menu View

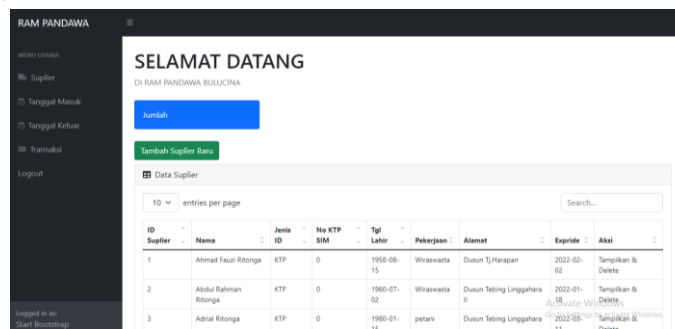


Figure 8. Supplier Menu View

Figure 8. Supplier Menu Display, on this menu is the supplier data page, namely, Supplier ID, Name, ID Type, ID Number/ SIM, Birth Date, Occupation, Address, Expride, Action.

3.2.6 Sign-in Date Menu View

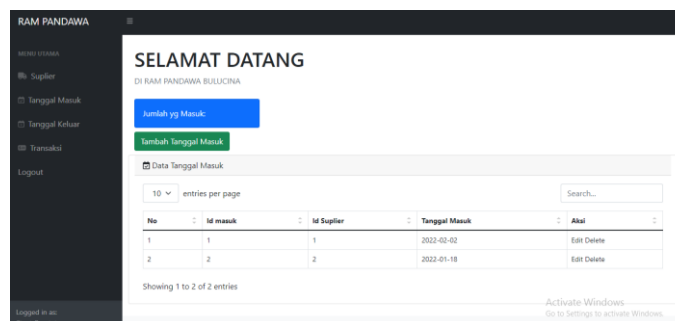


Figure 9. Sign-in Date Menu View

3.2.7 Transaction Menu View

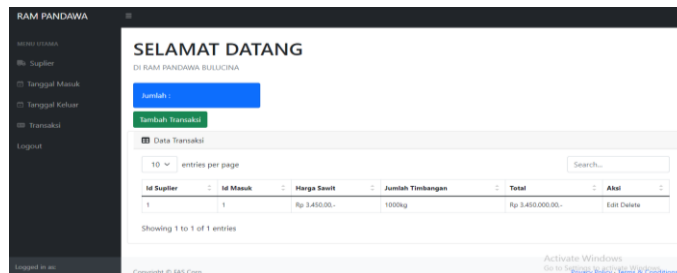


Figure 10. Transaction Menu View

Figure 10. Transaction Menu view, on this menu make transactions. Among others: supplier id, entry id, palm oil price, number of scales, total, and action.

3.2.8 Coding

Implementing the design into software is a major undertaking. Using the php and MySQL programming languages, as well as the required application, Visual Studio Code, the author generates program code in this step. HTML (Hypertext Markup Language) is a programming language for creating web pages that can be viewed using a set of basic syntax or tags in a file. [15]. PHP (HyperText Preprocessor) is a server-side scripting language. PHP is a script that combines HTML and resides on the server. [16].

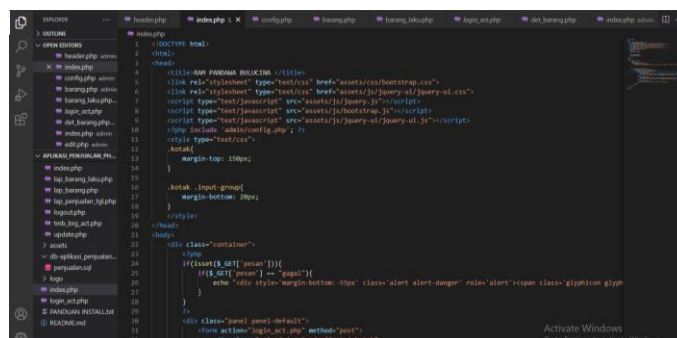


Figure 10. Source Code View

3.2.9 Verification

Ram Pandawa Bulucina Palm Weigh Note system is being tested utilizing the BlackBox approach. Before the system is deployed in the user's environment, testing is carried out to identify any flaws or mistakes.

TABLE 1
BLACK BOX TESTING

Unit Test	Test Description	Model Testing	Test Results
Menu Login	Verify Email dan Password	Black Box	Valid
Home Page	Navigate the Home Menu	Black Box	Valid
Data Suplier	Add Data A New Suplier	Black Box	Valid
Data Transaction	Add New Transaction	Black Box	Valid

3.2.10 Maintenance

The implementation of the Program is the last stage where developers implement the Palm Weigh Note system that has been built after passing the testing stage.



4. Conclusion

Using this application can help Ram Pandawa Bulucina party to input data. Making it easier for Ram Pandawa Bulucina in sorting palm fruit and weighing palm fruit.m facilitates Ram Pandawa Bulucina in carrying out various transaction processes that will be carried out. This RAM information system is created to help fruit owners, sorting officers, admins and RAM species in obtaining accurate data so as to reduce errors in making transaction reports.

References

- [1] M. Alda, "Perancangan E - Commerce Kelapa Sawit Pada Desa Sungai Toman," *J. Ilm. Media Sisfo*, vol. 14, no. 1, p. 35, 2020, doi: 10.33998/mediasisfo.2020.14.1.718.
- [2] F. Setiawan, O. Fajarianto, and A. Firdaus, "Pengembangan Aplikasi Timbangan Berat Produk," *J. Petik*, vol. 4, no. 1, p. 1, 2018, doi: 10.31980/jpetik.v4i1.2.
- [3] R. Nursyanti, "Perancangan Sistem Pengolahan Data Timbang Pabrik Minyak Sawit (Cpo Mill) Pada Pt Hindoli Banyuasin Palembang," *J. Sist. Inf. dan Telemat.*, vol. 4, no. 2, pp. 32–53, 2014.
- [4] C. E. Simbolon, "Penerapan Algoritma Regresi Linier Sederhana Dalam Memprediksi Keuntungan dan Kerugian Kelapa Sawit Pt . Sri Ulina," *J. Inf. Syst. Res.*, vol. 2, no. 2, pp. 169–172, 2021.
- [5] D. Triesia and M. Kom, "Sistem Pengolahan Data Hasil Panen Buah Sawit," pp. 1–8, 2014.
- [6] D. Setiady, "Analisis Pemasaran Tandan Buah Segar Kelapa Sawit Rakyat Desa Sidodadi Kecamatan Kampung Rakyat Kabu- paten Labuhanbatu Selatan," vol. 2, pp. 1–11, 2022.
- [7] M. Pradana, "Perencanaan Skema Sistem Informasi Untuk Aktivitas Manajemen," *EKOMBIS Rev. J. Ilm. Ekon. dan Bisnis*, vol. 4, no. 1, pp. 65–71, 2016, doi: 10.37676/ekombis.v4i1.155.
- [8] B. H. Rambe *et al.*, "UML Modeling and Black Box Testing Methods in the School Payment Information System," *J. Mantik*, vol. 4, no. 3, pp. 1634–1640, 2020, [Online]. Available: <https://iocsience.org/ejournal/index.php/mantik>
- [9] I. R. Munthe, E. W. Wardana, and G. J. Yanris, "Rancang Bangun Sistem Informasi Geografis Pemetaan Hutan Pada Kabupaten Labuhan-Batu," *Rabit J. Teknol. dan Sist. Inf. Univrab*, vol. 6, no. 2, pp. 77–82, 2021, doi: 10.36341/rabit.v6i2.1717.
- [10] W. Apriliah, N. Subekti, and T. Haryati, "Penerapan Model Waterfall Dalam Perancangan Aplikasi Sistem Informasi Simpan Pinjam Pada Koperasi Pt. Chiyoda Integre Indonesia Karawang," *J. Interkom J. Publ. Ilm. Bid. Teknol. Inf. dan Komun.*, vol. 14, no. 2, pp. 34–42, 2021, doi: 10.35969/interkom.v14i2.69.
- [11] T. Snadhika Jaya, "Pengujian Aplikasi dengan Metode Blackbox Testing Boundary Value Analysis (Studi Kasus: Kantor Digital Politeknik Negeri Lampung)," *J. Inform. J. Pengemb. IT*, vol. 03, no. 02, pp. 45–48, 2018.
- [12] Marisa, "Rancangan Aplikasi Sistem Informasi Akademik menggunakan Metode Waterfall Berbasis Web," *Cendikia*, vol. XVIII, pp. 303–308, 2019.
- [13] P. Harian, L. Phl, P. Perusahaan, and P. Sawit, "Rancang bangun sistem informasi pembayaran gaji karyawan pekerja harian lepas (phl) pada perusahaan perkebunan sawit (pt x)," no. Pt X.
- [14] D. P. Aji, Sopian, "Perancangan Sistem Informasi Inventory Barang," *Peranc. Sist. Inf. Invent. Barang*, vol. 53, no. 9, pp. 1689–1699, 2021, [Online]. Available: https://repository.bsi.ac.id/index.php/unduh/item/303949/File_10.-Bab-II-Landasan-Teori.pdf
- [15] Tumini and M. Fitria, "Penerapan Metode Scrum Pada E-Learning Stmik Cikarang Menggunakan Php Dan Mysql," *J. Inform. SIMANTIK*, vol. 6, no. 1, pp. 12–16, 2021, [Online]. Available: <https://www.fasaintek.panca-sakti.ac.id/index.php/simantik/article/view/112>
- [16] B. A. Herlambang and V. A. V. Setyawati, "Perancangan Data Flow Diagram Sistem Pakar Penentuan Kebutuhan Gizi bagi Individu Normal Berbasis Web," *J. Inform. UPGRIS*, vol. 1, no. Juni, pp. 78–85, 2015.

