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WEB-BASED PROJECT MONITORING INFORMATION SYSTEM AT PT. FITRA WIKA PEKANBARU

Eddissyah Putra Pane[1], Pernardi Silalahi[2]*

[1]Magiser Ilmu Komputer, Sekolah Pasca Sarjana, Universitas Lancang Kuning, Pekanbaru, Indonesia
[2]Teknik Informatika, Fakultas Ilmu Komputer Universitas Lancang Kuning, Pekanbaru, Indonesia

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Correspondence

E-mail: pane@unilak.ac.id*

A B S T R A C T

Project progress is an important indicator of the success of construction, which includes four main criteria, namely time, scope, cost, and quality. These four aspects must be monitored continuously to ensure they remain in line with the plan that was established at the outset. However, at PT. Fitra Wika Pekanbaru, the project monitoring process is still carried out manually using Microsoft Excel. This method is considered inefficient because it is prone to delays in data updates, inconsistencies in information, and difficulties in recapitulating and analyzing projects comprehensively. To overcome these problems, this study applies the Web Development Life Cycle (WDLC) method in designing and building a web-based project monitoring information system. The system was developed using the PHP programming language with a MySQL database, supported by the Bootstrap framework to produce a responsive and user-friendly interface. The result of this development is an online-based project monitoring system that not only simplifies the data input and reporting process but also enables real-time and continuous monitoring of project progress. Furthermore, this system supports management in conducting evaluations and making faster and more accurate decisions by providing comparative information between project planning and realization. Thus, the implementation of this information system is expected to improve work efficiency, reduce the risk of data loss, and support transparency and accountability in construction project management at PT. Fitra Wika Pekanbaru.

1. Introdution

Advances in information technology, particularly the internet, have facilitated various fields of work through faster access without distance and time limitations. Whereas previously information dissemination was done manually and relatively slowly, it can now be carried out more effectively and efficiently. This change has affected many aspects of life, including companies and agencies in carrying out their business processes. One sector that has felt the impact is the construction or contracting services sector, which has now begun to switch to web-based systems to monitor and manage projects in an integrated manner (Fajri et al., 2020; Salma et al., 2023).

PT. Fitra Wika is a company engaged in construction services. The projects carried out are jobs that have been budgeted and offered by relevant government agencies, such as the Ministry of Public Works (PU), to construction service providers. Interviews with the Project Manager revealed that PT. Fitra Wika Pekanbaru does not yet have a computerized system to monitor the progress of projects or the work process. All transactions are still carried out manually or based on physical documents, so

the accuracy of data and information related to projects is not yet optimal (PT. Fitra Wika Pekanbaru, 2025).

When PT. Fitra Wika Pekanbaru obtained a project, it did not have a digital reporting system and still used simple applications such as Microsoft Excel. This condition made it difficult for project managers to determine the progress of each ongoing project. The reporting process was still manual, limited to reports from field supervisors to project managers, so there were often discrepancies between the conditions of the work in the field and the reports submitted. This has an impact on the suboptimal monitoring and data collection processes for projects (Denny, 2021; Sahfitri, 2022).

Thus, to overcome obstacles in monitoring project implementation, a monitoring system is needed to assist companies, especially project managers, in overseeing the progress of work on each project managed. Based on these issues, a project monitoring information system is needed that can facilitate the monitoring of work implementation while presenting information quickly and accurately (Darmawan & Ratnasari, 2020; Muzhaki et al., 2025). In addition, the development of an integrated and easily accessible database is also important for storing all project documents relevant to project managers and related parties (Septanto & Hidayatullah, 2022; Agustha et al., 2024). The purpose of this study is to design and develop a web-based project monitoring information system that functions as a means of monitoring the status of project activities at PT. Fitra Wika Pekanbaru.

2. Research Method

The system development method used is the Web Development Life Cycle (WDLC). This method utilizes components from various methodologies, which are then combined into a new approach. The aim is to accelerate the development process, provide a clearer structure for unstructured problems, and ensure user involvement throughout the Development Life Cycle stages (Yudianto, S., & Sulistyo, W. 2022).

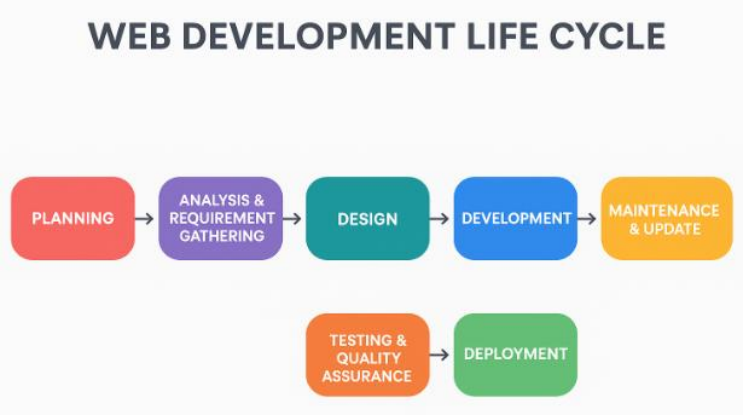

Figure 1. Web Development Life Cycle (WDLC)

The following are the stages of the WDLC development model used.

a. Planning

   The initial stage to identify project objectives, target users, and the scope of the application/website.

b. Analysis & Requirement Gathering

   Gathering detailed information about the features, workflows, data, and integration required by users.

c. Design

Creating visual designs, system architecture, and database structures prior to code implementation.

d. Development

The stage of implementing code based on the designs that have been created. This process can use waterfall, agile, scrum, or hybrid methods depending on the needs.

e. Testing & Quality Assurance (Testing)

The stage of checking for bugs and errors and ensuring that the application runs according to specifications.

f. Deployment (Implementation/Launch)

After the application passes testing, the web is ready to be launched on the production server.

g. Maintenance & Update (Maintenance)

The final stage is to ensure that the application continues to run optimally and remains relevant..

3. Results and Discussion

Based on the analysis results, a web-based project data monitoring reporting system application was designed for PT. Fitra Wika Pekanbaru. This application is intended to monitor and assess the progress and prospects of partner projects, while improving and developing existing systems in order to enhance service quality for all parties involved. It is hoped that this monitoring reporting system will provide tangible benefits by presenting the required information quickly, easily, and more accurately.

3.1. Proposed System

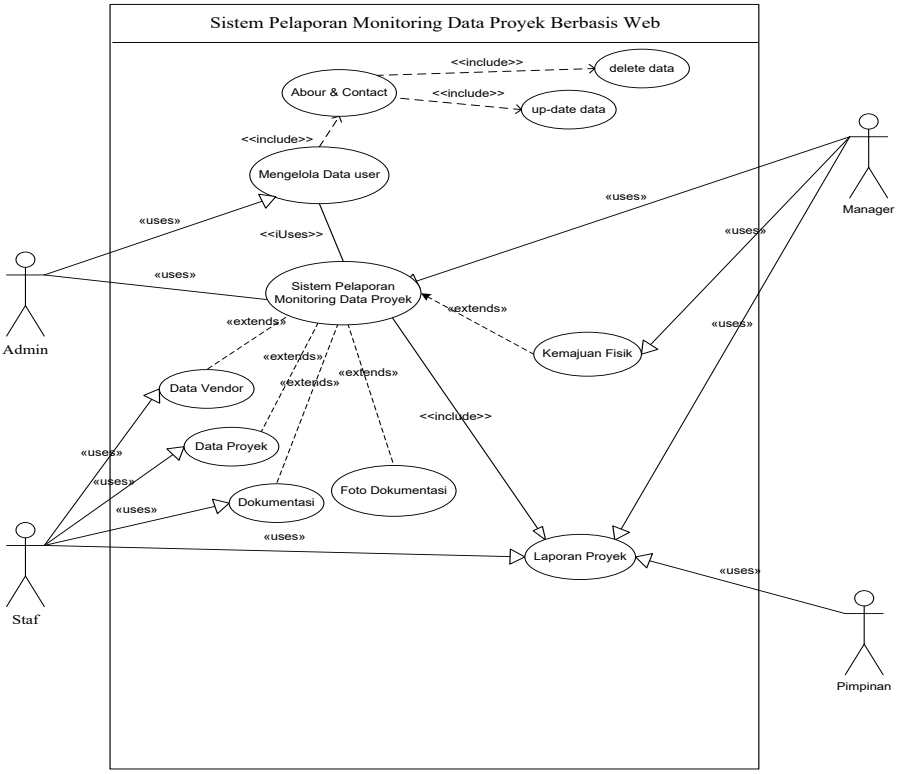

Figure 2. Use Case Diagram

The administrator is responsible for managing the system by entering and updating data in line with project developments, as well as communicating project monitoring information to relevant parties. Meanwhile, users or respondents can access the site to view detailed project data, which is displayed according to field conditions and available information.

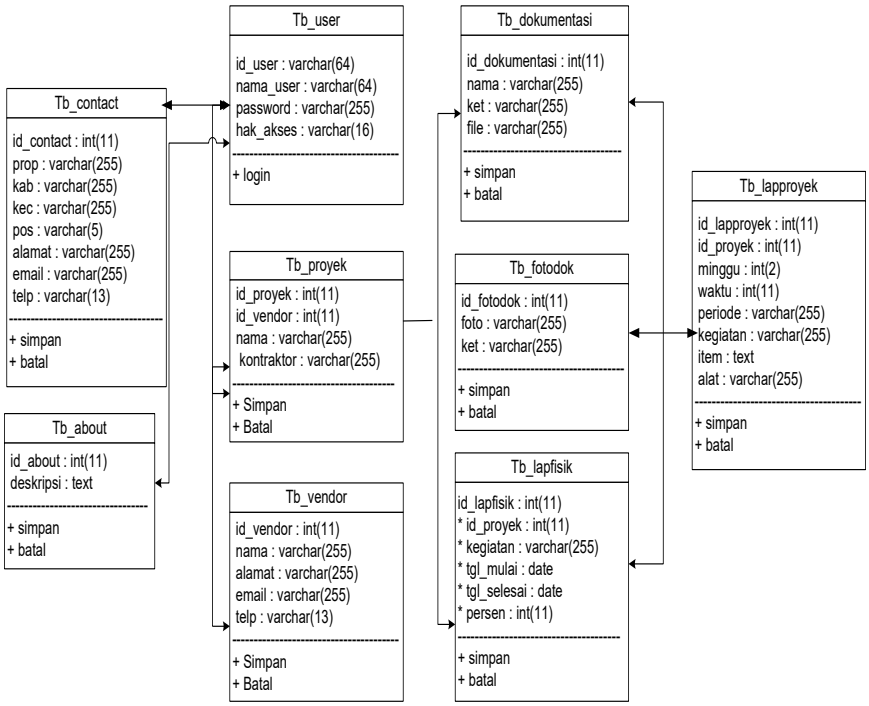

Figure 3. Class Diagram

3.2. Web Interface

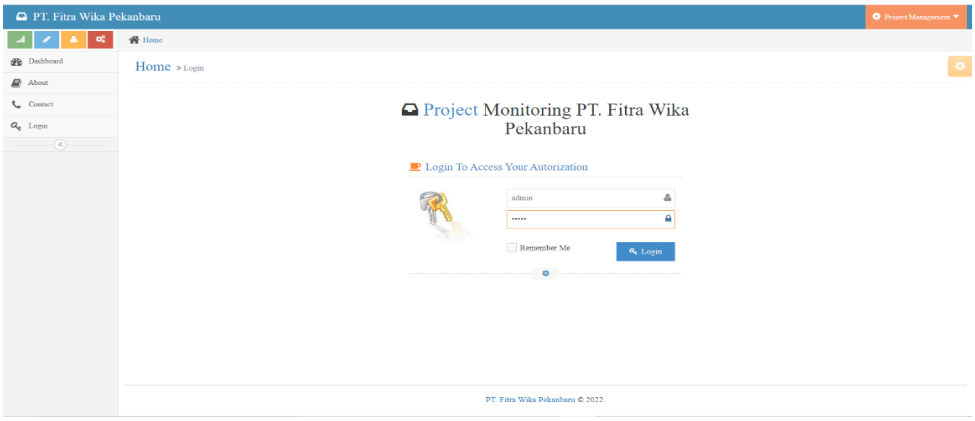

Figure 3. Login Page

The login page serves as the gateway to the application, where each user can access the system according to the access rights determined by the administrator.

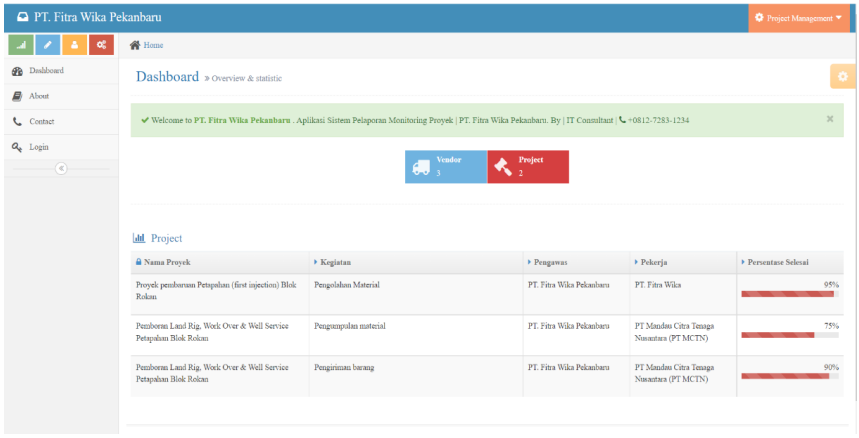

Figure 5. Home Page

The main page is the home screen of the project data monitoring reporting system application, which displays the main menu and information as a navigation center for users.

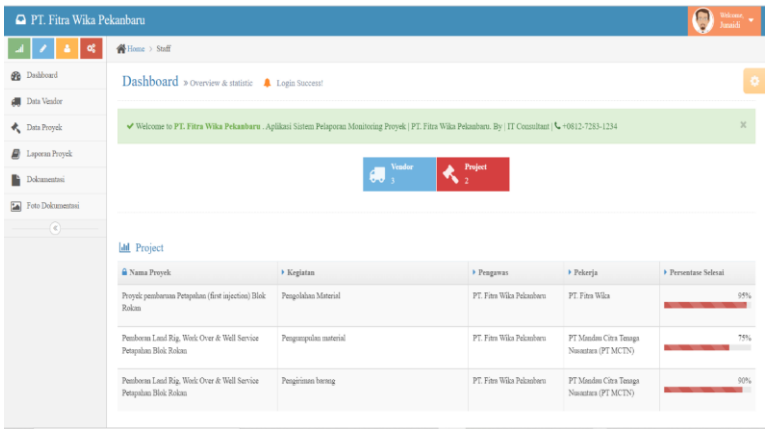

Figure 6. Staff Page

On the main page for staff, there are several main menus that can be accessed, including the vendor menu, project data menu, project report menu, and documentation menu, which includes document and project photo storage.

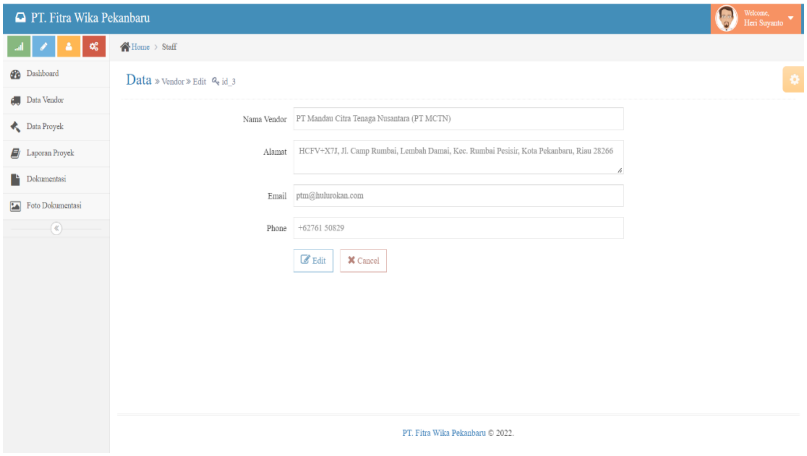

Figure 7. Vendor Input Page

This page is used to input data on vendors working on projects at PT. Fitra Wika Pekanbaru. The data recorded includes the vendor's name, address, email address, and telephone number as the main contact information.

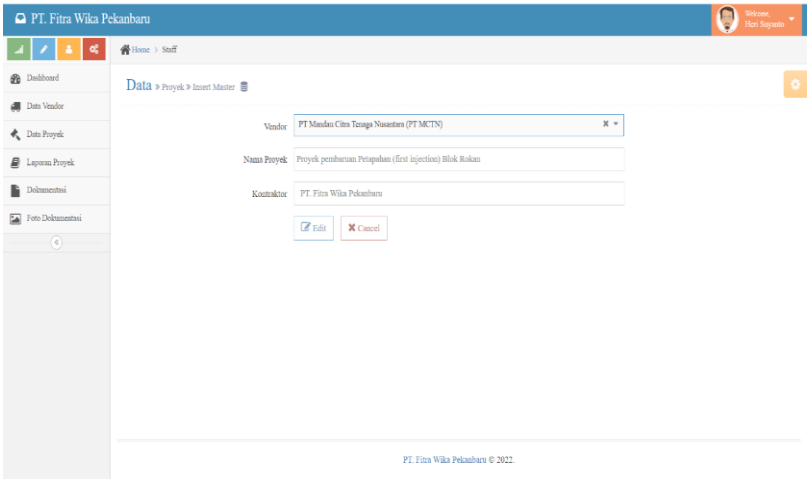

Figure 8. Project Input Page

This page is used to input data on projects currently being implemented by PT. Fitra Wika Pekanbaru. The information entered includes data on the implementing vendor, project name, and responsible contractor.

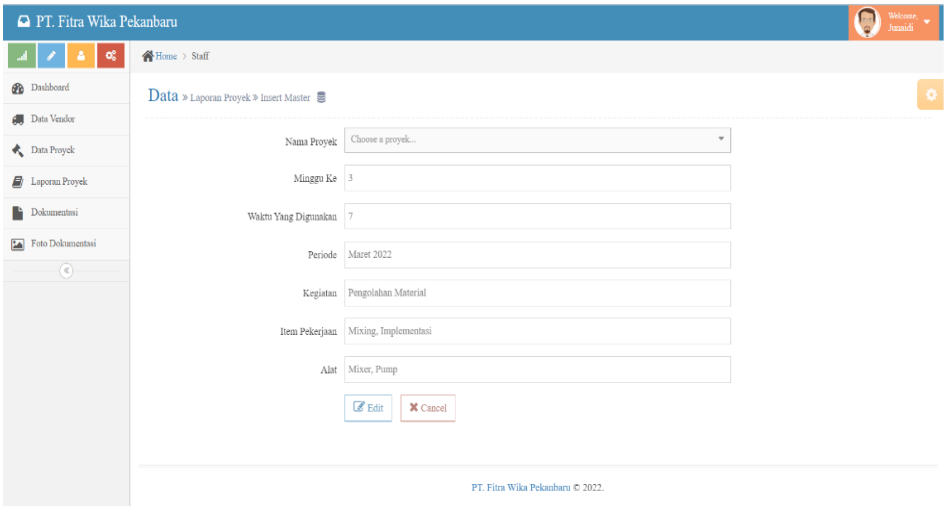

Figure 9. Project Data Input Page Display

This page is used to enter more detailed project data, including the project name, week of implementation, time used, period, type of activity, work items, and equipment used.

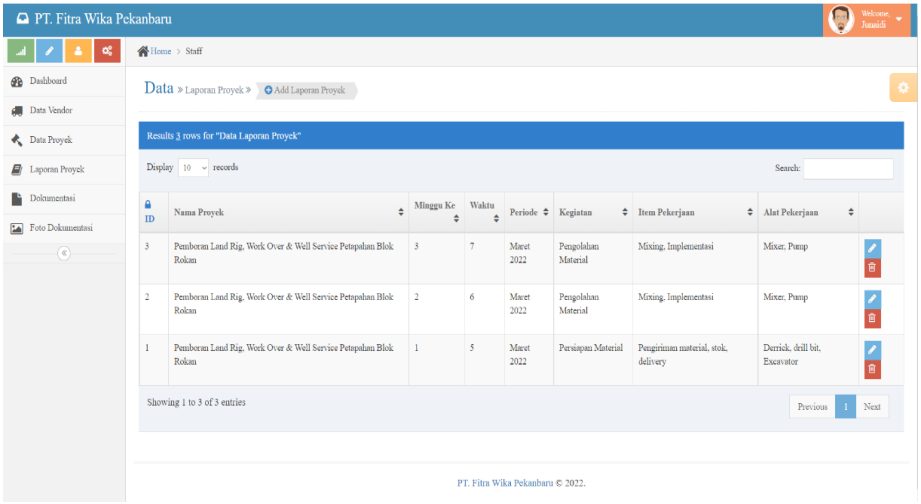

Figure 10. Project Report Data Page

This page displays a list of project work reports, which contain summaries of information related to the progress of work on each project.

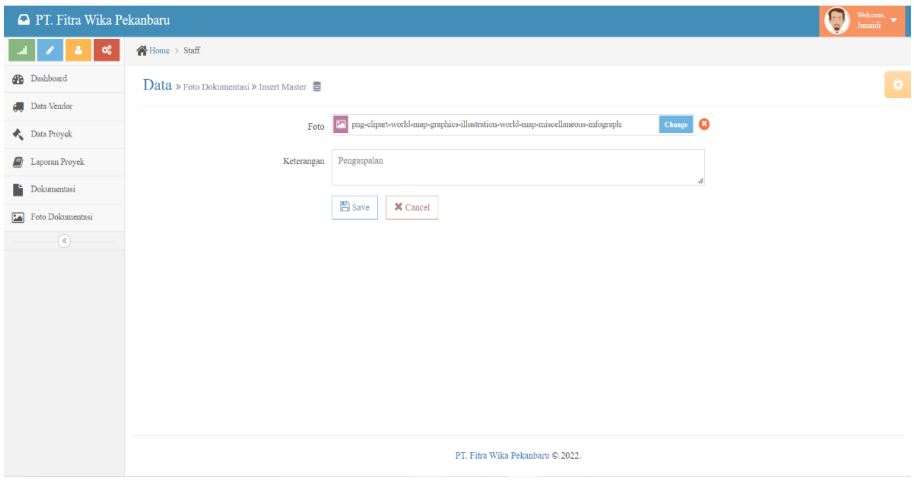

Figure 11. Documentary Photos

This page is used to input data in the form of project photos and descriptions as part of the documentation.

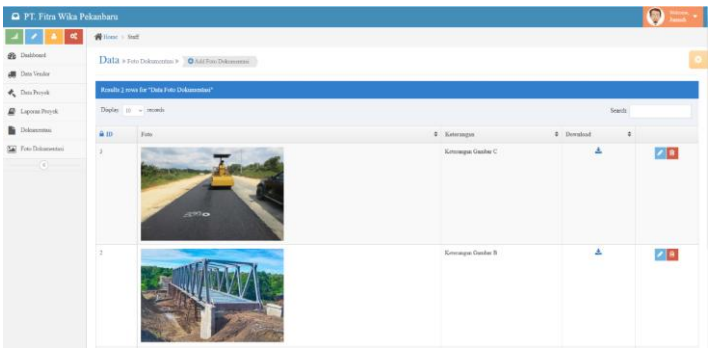

Figure 12. Documentation Photo Page

This page displays data in the form of project photos and accompanying descriptions as part of the activity documentation.

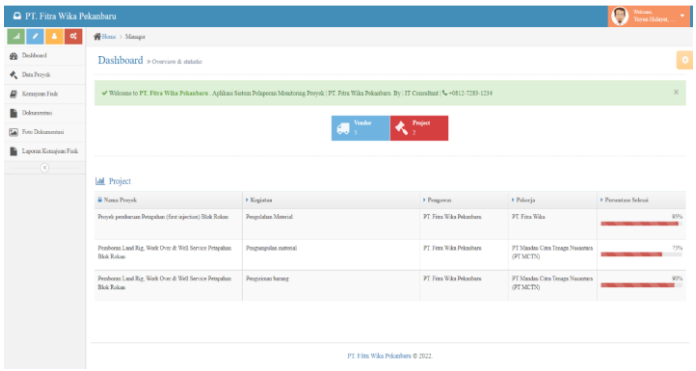

Figure 13. Pages Page Manager

This page presents several main menus, namely project data, physical progress, documentation, and photo documentation that can be accessed according to user needs.

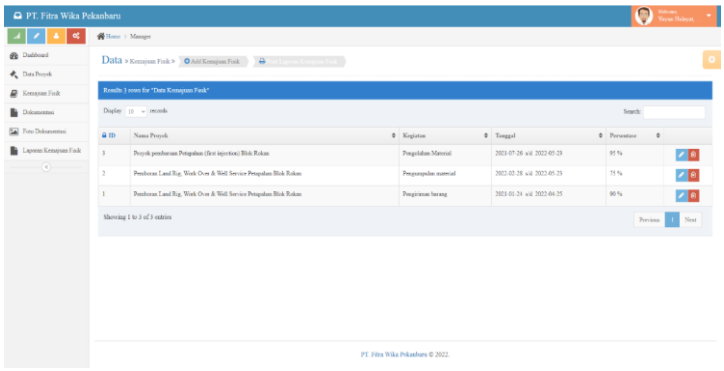

Figure 14. Project Physical Progress Input Page Display

This page displays physical progress data for the project, which includes input fields for recording the project name, type of activity, start and end dates, and percentage of work completed.

LAPORAN
PT. FITRA WIKA PEKANBARU
BULAN DECEMBER 2022

ID	NAMA PROYEK	MINGGU KE-	WAKTU	PERIODE	KEGIATAN	ITEM PEKERJAAN	ALAT PEKERJAAN
3	Pemboran Land Rig, Work Over & Well Service Petapahan Blok Rokan	3	7	Maret 2022	Pengolahan Material	Mixing, Implementasi	Mixer, Pump
2	Pemboran Land Rig, Work Over & Well Service Petapahan Blok Rokan	2	6	Maret 2022	Pengolahan Material	Mixing, Implementasi	Mixer, Pump
1	Pemboran Land Rig, Work Over & Well Service Petapahan Blok Rokan	1	5	Maret 2022	Persiapan Material	Pengiriman material, stok, delivery	Derrick, drill bit, Excavator

Pekanbaru, 19-12-2022
Yang Melaporkan,

Heri Suyanto
Head Operation

Figure 15. Project Report Page Display

This page presents reports containing project development data, facilitating monitoring and evaluation of work progress.

LAPORAN
PT. FITRA WIKA PEKANBARU
BULAN DECEMBER 2022

ID	NAMA PROYEK	MINGGU KE-	WAKTU	PERIODE	KEGIATAN	ITEM PEKERJAAN	ALAT PEKERJAAN
Maret 2022	Pemboran Land Rig, Work Over & Well Service Petapahan Blok Rokan	3	7	Maret 2022	Pengolahan Material	Mixing, Implementasi	Mixer, Pump
Maret 2022	Pemboran Land Rig, Work Over & Well Service Petapahan Blok Rokan	2	6	Maret 2022	Pengolahan Material	Mixing, Implementasi	Mixer, Pump
Maret 2022	Pemboran Land Rig, Work Over & Well Service Petapahan Blok Rokan	1	5	Maret 2022	Persiapan Material	Pengiriman material, stok, delivery	Derrick, drill bit, Excavator

Pekanbaru, 19-12-2022
Yang Melaporkan,

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Head Operation

Figure 16. Project Page Display by Period

This page displays project progress reports based on specific periods, allowing users to monitor work progress periodically according to the predetermined schedule..

3.3. Discussion

In order for the implementation of this new system to run optimally, PT. Fitra Wika Pekanbaru is expected to have experts who understand the field of information systems that have been developed. In addition, a training program is needed for users so that the system can be operated properly according to its functions. To support effective data processing, it is necessary to build a work system that is organized in accordance with the duties and responsibilities of each department, so that the information produced can meet the needs and expectations of the company.

4. Conclusion

Previously, the project monitoring system at PT. Fitra Wikak was still done manually using Excel. With the web-based monitoring information system, the process of inputting project data, monitoring work reports, budgets, and contractor data can be done online, making it more efficient in terms of time and cost. This system was developed using the Web Development Life Cycle (WDLC) method and implemented using the Bootstrap framework to ensure optimal performance. The introduction of this web-based project monitoring system has also improved the management of BTS project data, as it provides menus and reports tailored to user needs. Additionally, the transition from physical to digital storage is expected to reduce the risk of data loss or damage.

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