

LOGISTICS DELIVERY APPLICATION FOR MEDICAL EQUIPMENT AT PT. MITRA FAJAR SELARAS BASED ON WEBSITE

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ABSTRACT

Advances in computer-based technology is utilized by the company by making the computer as a tool to process data into a fast and accurate information so that the company can accelerate the completion of a job. In processing input usage and managing corporate data is also still see the status of goods shipped are still using Microsoft Word And Excel, but only implemented in the process of typing data and making tables, after the data is typed and then printed to be a report in the company. the system used today still poses a problem in the process of operation. The research method used is to conduct interviews, and literature studies in order for this study to obtain accurate data for the application of medical device delivery at PT. Mitra Fajar Selaras based Website can be built with existing information. By using the Waterfall method or waterfall. This Model proposes an approach to systematic and sequential Website development that starts from the level of system progress across analysis, design, code, testing and maintenance. This research is expected at PT. Mitra Fajar Selaras Shipping Logistics has been based on the website as an alternative medium in order to assist the company in the process of delivering information and data management quickly and accurately to support the process of delivering quality goods in monitoring and accelerating delivery distribution.

Keywords: Application, Logistics, Website.

APLIKASI PENGIRIMAN LOGISTIK ALAT KESEHATAN PADA PT. MITRA FAJAR SELARAS BERBASIS WEBSITE

ABSTRAK

Perkembangan teknologi berbasis komputer dimanfaatkan oleh perusahaan dengan menjadikan komputer sebagai alat untuk memproses data menjadi informasi yang cepat dan akurat, sehingga perusahaan dapat mempercepat penyelesaian pekerjaan. Dalam proses pengolahan data input dan pengelolaan data perusahaan, status barang yang dikirim masih menggunakan Microsoft Word dan Excel, namun hanya diterapkan dalam proses pengetikan data dan pembuatan tabel. Setelah data diketik, kemudian dicetak menjadi laporan di perusahaan. Sistem yang digunakan saat ini masih menimbulkan masalah dalam proses operasional. Metode penelitian yang digunakan adalah melakukan wawancara dan studi literatur agar penelitian ini dapat memperoleh data akurat untuk penerapan pengiriman perangkat medis di PT. Mitra Fajar Selaras Shipping Logistics yang dapat dibangun

berdasarkan informasi yang ada. Dengan menggunakan metode Waterfall atau waterfall. Model ini mengusulkan pendekatan pengembangan Website yang sistematis dan berurutan, dimulai dari tingkat kemajuan sistem melalui analisis, desain, pemrograman, pengujian, dan pemeliharaan. Penelitian ini diharapkan dapat diterapkan di PT. Mitra Fajar Selaras Shipping Logistics sebagai alternatif media untuk membantu perusahaan dalam proses penyampaian informasi dan manajemen data secara cepat dan akurat, guna mendukung proses pengiriman barang berkualitas dalam pemantauan dan percepatan distribusi pengiriman.

Kata Kunci: Aplikasi, Logistik, Website

INTRODUCTION

Advances in computer-based technology is utilized by the company by making the computer as a tool to process data into a fast and accurate information. Each employee of the logistics and Courier division can input usage and manage data as well as the company can see the status of goods delivered easily both into town and out of town. Many large companies use website systems to send goods or documents, both in small and large quantities. In processing, inputting usage and viewing the status of goods sent still using Microsoft Word and Excel, but only implemented in the process of typing data and making tables. The system used today still poses a problem in the processing and search of data that is still slow. Before conducting research on the website in the development of Information Systems Research is done by doing the waterfall method in order for this study to obtain accurate data in the development of information systems also use literature review as one of the application of research methods.

For that in need of a system that can overcome the above problems in the company PT. Mitra Fajar Selaras and based on these problems, the author took the title “Application Delivery Logistics Medical Devices at PT. Mitra Fajar Selaras based Website”

From the description of the background above, it can be identified various problems in this study, which are as follows:

1. In processing input usage and delivery is still constrained by time so that the delivery schedule becomes piled up.
2. There is no website application that supports to speed up the completion of a job.
3. In data management is still manual because it still uses microsoft word and excel input.

Once identified, the author takes a boundary problem so as not to go too far in discussing this thesis. The limits of the problem are as follows :

- a. The problems discussed include the input process, delivery of goods and data management.
 - b. The focus of the study is to improve data processing as well as companies can see the status of goods shipped.
 - c. Medical Device Logistics delivery application at PT. Mitra Fajar Selaras based Website is designed with a simple display has menu access tailored to the needs of the company.
- After the limitation of the problem, then the next step is to determine the formulation of

the problem. Formulation of the problem of research is:

- a. How do I create a medical device logistics delivery application on PT Mitra Fajar Selaras website-based?
- b. How to improve performance in completing a job?

This study has the objectives and benefits described below, namely:

1. The purpose of this study is:

1. To make it easier for companies and employees who want to check data without having to look at the books again.
2. The planning process in making a new system and refers to the needs that have been analyzed previously in the application of medical device Logistics delivery at PT. Mitra Fajar Selaras is based on this Website with the aim of accelerating performance and is expected to help the processes that occur in the company

2. The benefits of this research are:

a. Benefits For Authors

Can provide additional knowledge that can be used so that researchers obtain differences in what is learned in educational institutions with what is in PT. Fajar partners are aligned and get real implementation experience as the implementation of knowledge that has been obtained.

b. Benefits For The Campus

As a consideration of Science and skills for students, especially those related to the application of Logistics delivery of medical devices at PT. Partners Dawn Aligned Website-Based.

c. Benefits For The Company

This research is expected to be an input in resolving technical constraints that occur, in order to help the process of data input and delivery of goods effectively and efficiently.

LITERATURE REVIEW

1. Application

Application is a term used for computer users for problem solving. Usually the term application is paired or combined with software. Application comes from the word application which means application, application, use. In terms of terms, an application is a ready-to-use program designed to carry out a function for a user or another application used for one purpose. Applications are a subclass of computer software that utilizes the computer's capabilities directly to perform a task that the user desires. An application is software to be used for activity needs, such as government agency activities. shop, and can help make someone's job easier. So, the conclusion is that an application is software that is designed to make it easier for users to complete tasks or fulfill certain needs. An application is a piece of computer software that directly utilizes a device's capabilities to carry out specific functions, whether in the areas of individuals, business, government or other activities. With its existence, the application provides practical and efficient solutions to support various user activities.

2. Delivery

According to Lukas and Safitri, shipping is an important part of a supply chain which functions to prepare and send goods to customers. Transportation relates to what transportation model is used to be effective and efficient, both in terms of cost, speed of delivery time and timeliness. So, in conclusion, the definition of shipping is the process of distributing goods or services from producers to consumers, which is an important part of the supply chain. This process involves choosing the right mode of transportation to ensure cost efficiency, speed and timeliness so that goods can reach customers well.

3. Logistics

Logistics is a strategic management process for moving and storing goods, spare parts and finished goods from suppliers, between company facilities to customers.

Logistics is a function that involves moving, arranging the movement of goods, and storing materials on their journey from initial delivery, through the supply chain and to the final customer. Logistics comes from the ancient Greek word "Logistikos" which means "educated or clever" in estimating or calculating. Logistics is the art and science of managing and controlling the flow of goods, energy, information and other resources, such as products, services and people, from production sources to markets with the aim of optimizing the use of capital. So, Conclusion logistics is a strategic process that involves managing the movement and storage of goods, materials and other resources from suppliers to end customers through the supply chain. Logistics also encompasses the art and science of managing the flow of goods, information, and resources efficiently to optimize the use of capital and meet customer needs. This term comes from the ancient Greek word Logistikos, which means the ability to estimate or calculate.

4. Medical devices

Based on RI law no. 23 of 1992 concerning health, what is meant by Medical Devices are instruments, apparatus, implantable machines that do not contain drugs that are used to prevent, diagnose, cure and relieve disease, treat sick people and restore health to humans and/or to form structures and improve body functions.

5. Website

A website can be defined as a collection of pages containing digital data, including text, images, animations, sound, and video, or a combination of these, provided via an internet connection so that it can be accessed and viewed by anyone worldwide. Website pages are created using a standard language, HTML. This HTML script is interpreted by a web browser so that it can be displayed in a form that is readable by anyone. A website is a collection of web pages within a domain that contain information. A website is typically built from multiple web pages, with other web pages called hyperlinks, while the text used as a connecting medium is called hypertext. A website is a collection of information/pages typically accessed via the internet. Anyone, anywhere and at any time, can use it as long as they are connected to the internet.

So, in conclusion, a website is a collection of web pages containing digital information in the form of text, images, sound, video, or a combination of these, which can be accessed via

the internet by anyone worldwide. The pages within a website are connected using hyperlinks and are built using a standard language like HTML, which is translated by a web browser into readable information. The website functions as a source of information that can be accessed at any time as long as it is connected to the internet network.

RESEARCH METHODS

A. Theoretical Basis

Application is a term used for computer users for troubleshooting. Usually the term application is paired or combined with a software. Application comes from the word application which means Application, Application, use. An application is a ready-made program designed to perform a function for another user or application used for a single purpose. An application is a subclass of computer software that utilizes the capabilities of a computer directly to perform a task that the user desires. Application is a software to be used as the needs of activities, such as activities intansi government. store, and can help make someone's job easier. Application is a computer software that utilizes the ability of a computer directly to perform a task that the user wants.

So, the definition of an application is software that is designed to make it easier for users to complete tasks or meet certain needs. An application is a piece of computer software that directly utilizes the device's capabilities to perform specific functions, whether in the field of individuals, business, government, or other activities. With its existence, the application provides practical and efficient solutions to support various user activities. After discussing the Application, Logistics is discussed. Logistics is the strategic management process of moving and storing goods, parts, and finished goods from suppliers, among company facilities to customers. Logistics is a function that involves moving, organizing the movement of goods, and the storage of materials on their way from initial delivery, through the supply chain and all the way to the end customer.

Logistics comes from the ancient Greek “Logistikos” which means “educated or smartest” in estimating or calculating. Logistics is the art and science of organizing and controlling the flow of goods, Energy, Information, and other resources, such as products,

services, and people, from the source of production to the market with the aim of optimizing the use of capital. Thus, the conclusion Logistics is a strategic process that involves managing the movement and storage of goods, materials and other resources from suppliers to end customers through the supply chain. Logistics also encompasses the art and science of efficiently organizing the flow of goods, information, and resources to optimize the use of capital and meet customer needs. This term comes from the ancient Greek Logistikos, which means the ability to estimate or count.

A. Company Profile/ Institution / Research Object

To be more clear, we will talk about the Website, where the Website can be defined as a collection of pages containing digital data information either in text, images, sound animations, and videos or a combination of all of them provided through an internet connection so that it can be accessed and viewed by everyone around the world. Website pages are created using a standard language, namely HTML, this HTML script is translated by a web browser so that it can be displayed in the form of information that can be read by everyone. Website is the entire web pages contained in a domain that contains information. A website is usually built on many web pages with other web pages called hyperlinks, while the text used as a connecting medium is called hypertext. A Website is a collection of information / collection of pages that are commonly accessed via the internet. Everyone in various places and all times can use it as long as it is connected online on the internet network. So, the conclusion website is a collection of web pages containing digital information in the form of text, images, sound, video, or a combination thereof, which can be accessed via the internet by anyone around the world. The pages in a website are linked using hyperlinks and built with a standard language such as HTML, which is translated by a web browser into readable information. The Website serves as a source of information that can be accessed at any time as long as it is connected to the internet network.

B. History, Vision, and Missions

PT Mitra Fajar Selaras or TRAFAS is a company engaged in trading, procurement of goods for medical devices, Laboratories, demonstrations, and visualization. The company was established in 2007, with a commitment to client satisfaction is our focus. With the support of a team of professionals who have the work ethic and experience in implementing various

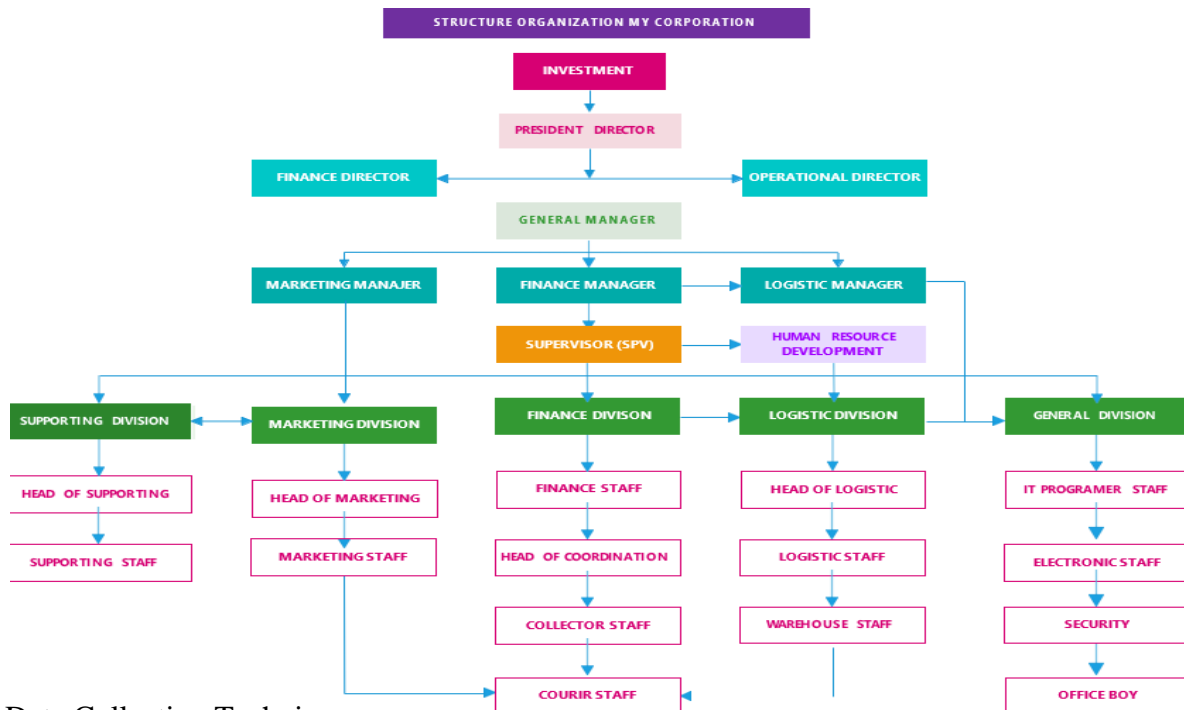
projects. TRAFAS always strives to prioritize and provide the best for all parties with good and sustainable cooperation so as to create a harmonious and mutually beneficial relationship with its business clients. TRAFAS makes experience as a teacher the best of every activity carried out as a business entity that prioritizes professionalism.

B.1. Vision and Missions

Some vision and mission at PT. Mitra Fajar Selaras, include:

1. Vision : “To become the most complete and trusted medical device provider company in Indonesia.
2. Mission
 - a. Meet customer needs for medical devices that have a competitive advantage.
 - b. Provide and distribute medical devices in accordance with quality and safety standards.
 - c. Provide the best service to consumers.

The organizational structure of PT. Mitra Fajar Selaras, can be seen below:



Data Collection Techniques

Some Data collection techniques in this study as follows:

- a. Field Studies (Field Research)

Research methods by conducting direct observations on the company concerned (observation), and direct interviews with parties related to the company being done (interview).

1. Observation

Observation is a data collection technique that is carried out by observing directly the object to be studied and through direct observation of the parts involved in the system, namely the managers and employees in order to obtain an overview of the system including the procedures used in the system, the data or files needed, and the obstacles faced related to that will be discussed.

OBSERVATION FORM		
Name	: Mr. Kurniadi Santoso	
Section / Position	: Head Of Logistics Warehouse	
Object Of Observation : Implant Delivery Process		
Date	Hours	Description Of The Observed Activities

2. Interview

Conducted directly to Mr. Kurniadi Santoso by interviewing about the logistics delivery process.

System Development Methodology:

Based on the system development methodology used in this study are as follows: Waterfall Method. Waterfall method or often called the waterfall seing method is called the classic life cycle (classic life cycle), the name of this model is actually a “Linear Sequential Model” where it describes a systematic and also sequential approach to software development, starting with the specification of user needs and then continuing through the stages of planning (planning), modeling (modeling), construction (contruction), as well as the delivery of the system to the users (deployment), ending with support for the complete software produced.

Stages waterfall method as follows:

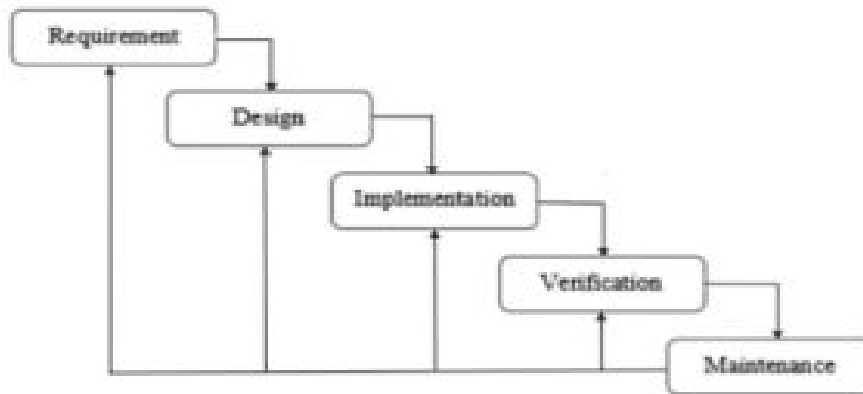


Figure 1 Stages Of The Waterfall Method

In the development of the waterfall method has several stages as follows:

1. Requirement Analysis

This stage of system development requires communication that aims to understand the software expected by the user and the limitations of the software. This information can usually be obtained through interviews, discussions or direct surveys. Information in the analysis to get the data needed by users.

2. System Design

The requirement specifications from the previous phase will be studied in this phase and the system design prepared. System design helps in determining the hardware and system requirements and also helps in defining the overall system architecture.

3. Implementation

At this stage, the system is first developed in small programs called units, which are integrated in later stages. Each unit is developed and tested for functionality which is referred to as unit testing.

4. Integration & Testing

All units developed in the implementation phase are integrated into the system after testing each unit. After integration the entire system is tested to check for any failures or errors.

5. Operation & Maintenance

The final stage in the waterfall method. Ready-made software, run and maintenance. Maintenance is included in fixing errors that were not found in the previous step.

Improvement of system unit implementation and improvement of system services as a new requirement.

Place / location, Research time and Research schedule

a. Place / location of PT. Mitra Fajar Selaras

Place / location of research conducted at PT. Mitra Fajar Selaras, whose address is at Rukan PTC Complex Block 8C No. 28-29 Pulogadung, RW.3, p. Terate, District. Cakung, Jakarta, Special Capital Region Of Jakarta 13920.

b. Time and schedule of research

The time and schedule of this study lasted approximately 6 months. The research schedule is in accordance with the established procedure.

Research Object

The object of research towards the subject or area that is the focus of research. So in this case, the objects of research include:

1. Logistics delivery app: it covers all aspects of the system used to manage logistics deliveries, including order management processes, inventory management, delivery arrangements, and shipment tracking.
2. Medical devices: the object of research also includes the types of medical devices delivered by the company, including medical equipment, medicines, laboratory equipment, diagnostic tools, and other health items.
3. Website-based system: the focus of the research will also include the website platform used by the company for its business operations. These include the technical aspects of the platform, user interface, system integration, and information security.
4. Shipping and distribution process: the study will pay attention to the processes involved in shipping and distribution of medical devices, including order processing, packing, shipping, tracking, and re-shipping.
5. Logistics technology: this includes technologies used in Logistics delivery management, such as warehouse management systems, Geographic Information Systems (GIS), route mapping software, and delivery tracking systems.
6. Stakeholders: the study will consider the needs and perspectives of various stakeholders involved in the logistics delivery process, including company management, logistics staff,

- suppliers, shippers, and customers.
7. Security and compliance aspects: the object of study also includes aspects of information security and compliance with relevant regulations and standards, such as data privacy regulations, medical device delivery regulations, and inventory management standards.
 8. Performance and efficiency analysis: the research will consider how to analyze the performance of logistics delivery systems and identify areas where efficiency can be improved to improve customer experience and reduce operational costs.

Analysis of the running system

At this time, the transaction recording system that is running at PT. Mitra Fajar Selaras are aligned in managing data and tracking shipments, related parties only inform via whatsapp group then the process is still using Microsoft Excel and Word, which according to the author is less effective and efficient, where the required reporting system will be difficult to present quickly and accurately. Here the author is interested in developing a medical device logistics delivery application at PT Mitra Fajar Selaras based on the website.

The current running flow:

- The actors involved :
 1. Logistics Division
 2. Courier
 3. Staff of Healthy Home

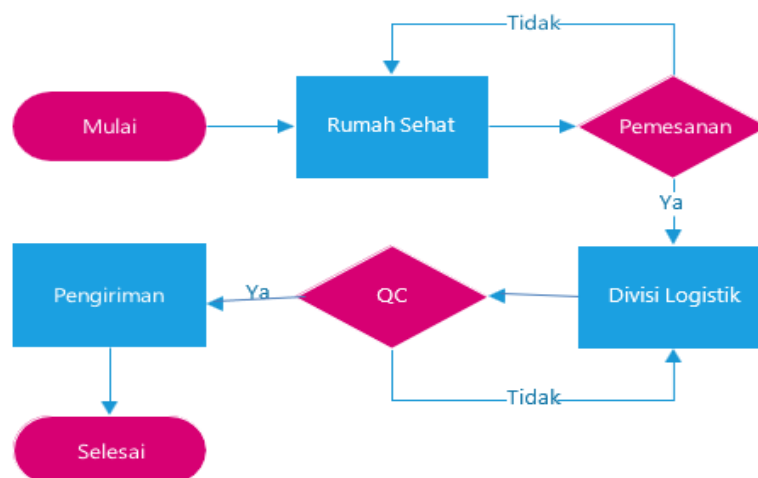


Figure 2 Flow of The Current Running System

Here is an explanation of the current running system:

- a. Rumah Sehat orders the products you want to buy for the availability of goods before the operation to PT Mitra Fajar Selaras if the operation is scheduled then the order will be accepted PT Mitra Fajar Selaras Logistics Division in particular if the operation is canceled then the booking is not continued.
- b. When received by the logistics division, the goods will be checked by the logistics Quality Control Team if the goods pass, they will be forwarded to The Courier team if not, a new one will be replaced.
- c. After all the procedures, The Courier team will send the order of the item to Rumah Sehat.

RESULTS AND DISCUSSION

RESULTS

1. System Requirements analysis

System Requirements analysis describes the needs of the system in order to provide an overview of the observed system that is currently running.

a. Hardware Requirement Analysis

In making a website, it takes several tools that are used to support website creation. The hardware tools (Hardware) is:

Table 1 Hardware Requirements

No.	Hardware Name	Specifications
1	Processor	Intel(R) Core (TM) i3-9100F CPU@3.60Hz 3.60GHz
2	RAM	8.00 GB
3	Hardisk	2 Terabyte
4	SSD	512 Gigabyte
5	Mouse & Keyboard	<i>Razer Basilisik Ultimate & Royal KludgeRKG68</i>
6	Internet Connection	Provider wifi First Media 50mbps

b. Software Requirements Analysis (Software)

In making a website, system development is needed for the running of the website. The software (Software) as follows:

Table 2 Software Requirements

No	Software Name	Uses
1	Microsoft Windows 11 Pro	As An Operating System
2	Visual Studio Code	As Website Creation
3	Adobe Photoshop	Where to edit photos/images
4	Microsoft Word Office2021 Professional Plus	As a place of making journals & thesis
5	Microsoft Visio 2016	As a place to make diagrams/charts

System Design (Flowchart)

The proposed system design is to use the flowchart as follows:

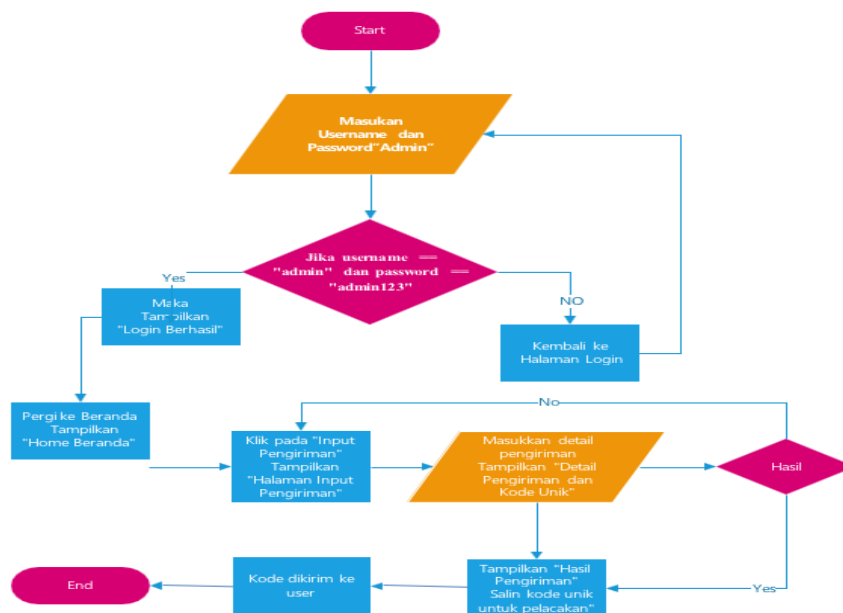


Figure 3. Flowchart

Figure 3. above is a flowchart on the medical device logistics delivery application website.

The explanation is as follows:

- Start (Admin) : employees of PT. Mitra Fajar Selaras as admin
- Login : employees of PT. Mitra Fajar Selaras login order can manage website.
- Home : there is a vision and mission of PT. Partners Fajar Selaras
- Input delivery : employees of PT. Partners Dawn aligned fill data shipping input.
- Result : the result of the input delivery that has been recorded good & true

Database Design Draft

Database design produces mapping tables depicted with Entity Relationship Diagram (ERD):

a. *Entity Relationship Diagram (ERD)*

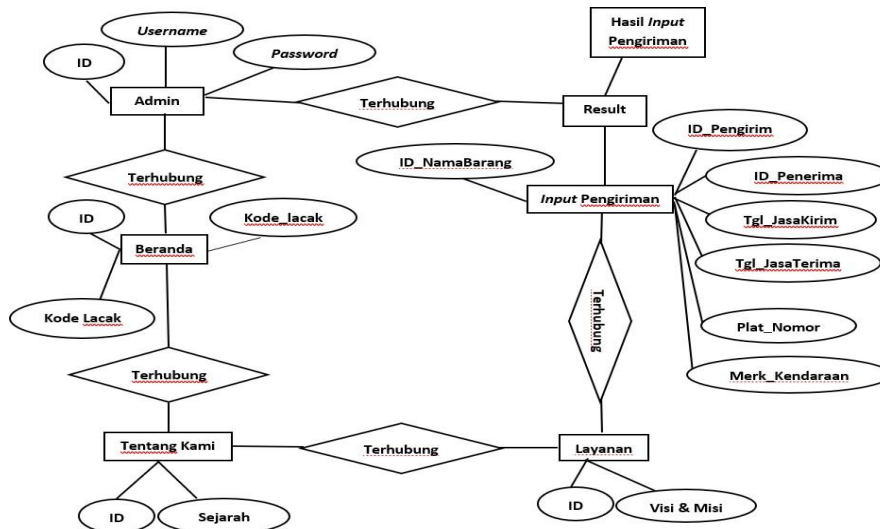


Figure 4. *Entity Relationship Diagram (ERD)*

b. File Specification

1. Admin & user table :

In this application uses the database file in it, as follows:

Table 3. Admin & User Login

No.	Data Elements	Acronyms	Type	Size	Description
1.	Id_admin	Id_admin	Integer	12	Primary Key
2.	Id_user	Id_user	Integer	12	
3.	Username	Username	Varchar	50	
4.	Password	Password	Varchar	10	

2. Shipping input table

Table 3 below is a shipping input table to add shipping input

Table 3. Shipping Input

No.	Data Elements	Acronyms	Type	Size	Description
1.	Item_name	Item name	Varchar	50	Primary Key
2.	Sender ID	Sender_ID	Integer	10	
3.	Sender ID	Sender_ID	Integer	10	

4.	Post_date	Date & Delivery Service	Varchar2	20	
5.	Accept_date	Date & Service Received	Varchar2	20	
6.	Plate_number	Plate number	Integer	10	
7.	Vehicle_brand	Brand of Vehicle	Varchar	25	

System Implementation

1. Login View

Login page is a page used by admin & user to login. Enter your username & password.

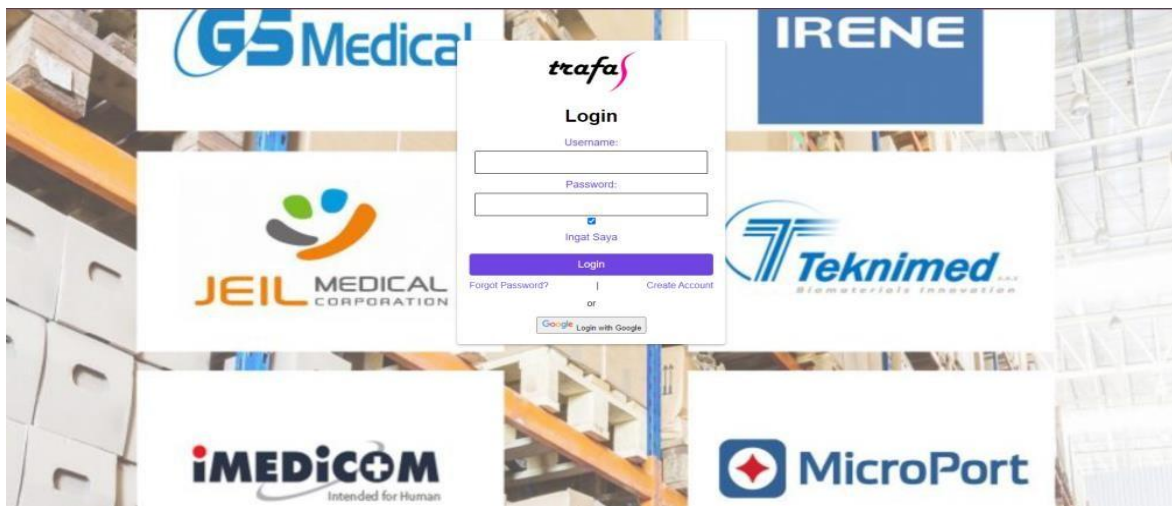


Figure 5. Login View

2. Home View

Home page used by admin to enter shipping tracking code for user

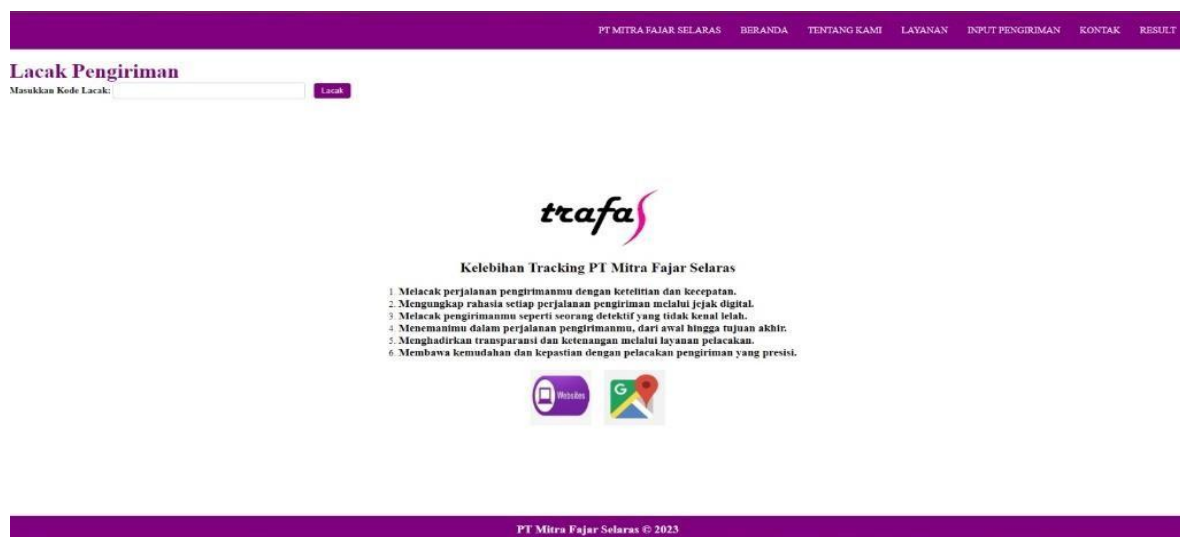


Figure 6. Home View

3. View about us

About Us page to know the history of PT. Mitra Fajar Selaras for admin and user

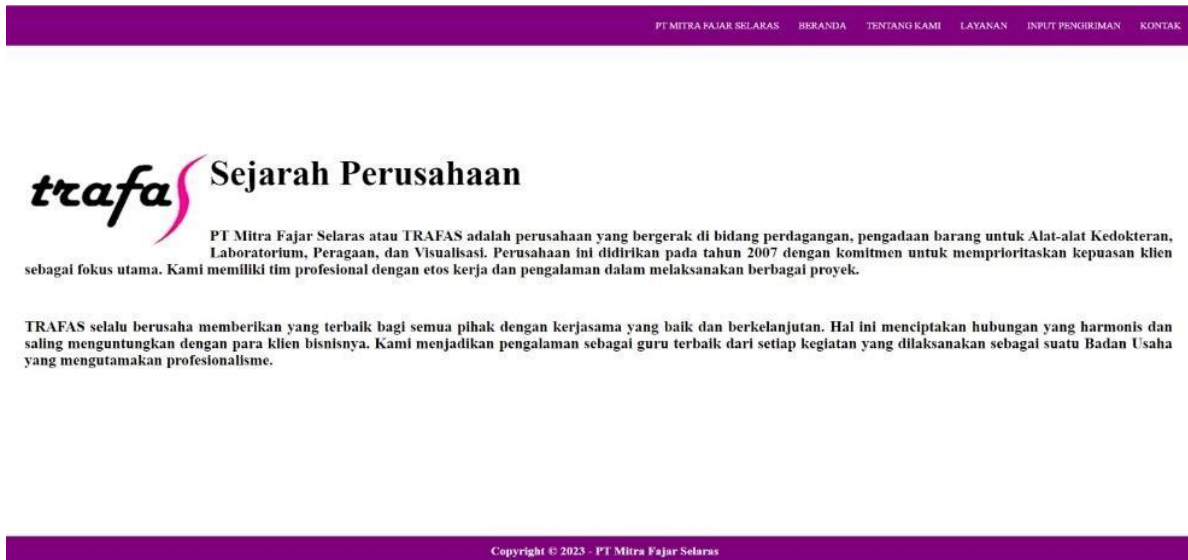


Figure 7. View About Us

4. Service View

Service page PT. Mitra Fajar Selaras, used by admins and users

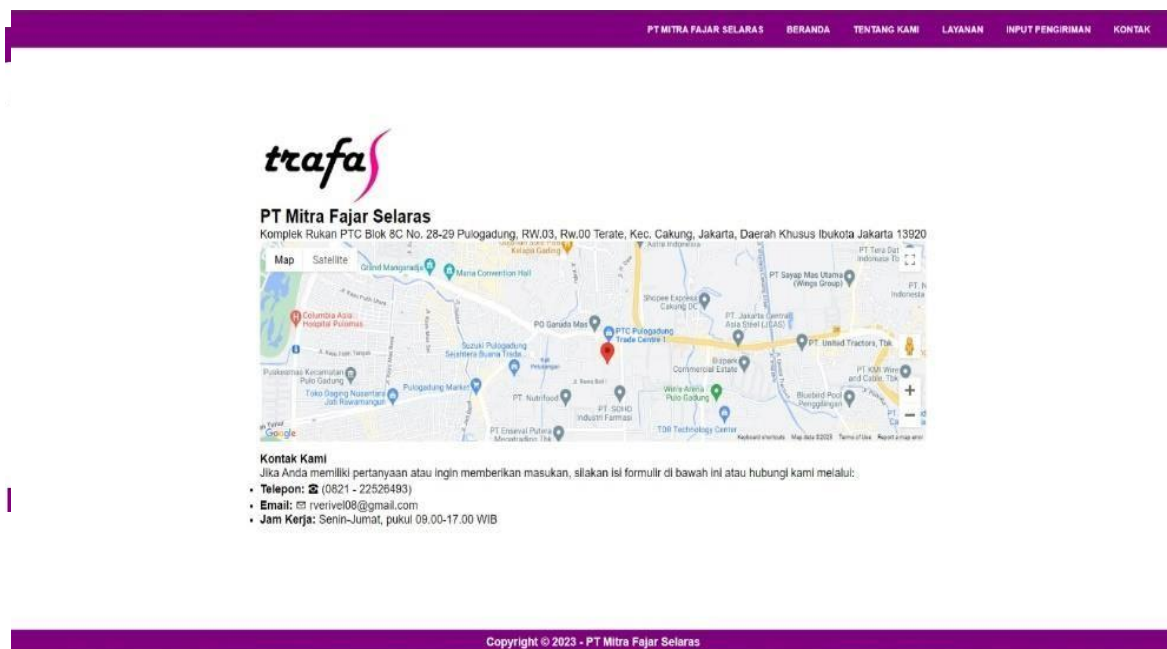


Figure 8. Service View

5. Submission Input View For Admin

Halaman *input* pengiriman untuk *admin* yang digunakan oleh *admin* untuk *input* pengiriman, lacak pengiriman, dan hasil pengiriman terbaru

Figure 9. Submission Input View for Admin

6. Our Contact View

Our Contact page is used to contact the contacts that are already available to users

7. Result Display

The result page is used by the admin to find out the results of the submission.

No	Nama Barang	Pengirim	Penerima	Tanggal dan Jam Kirim	Tanggal dan Jam Terima	Plat Nomor	Merek Kendaraan	Kode Pelacakan	Nama Rumah Sakit	Aksi
1	Orthocem 3G 10Pcs	Hari Tirtoyo	Bpk. Agus (Tim Komisi Gud. Farmasi)	3 Agustus 2023 pukul 00.09	4 Agustus 2023 pukul 00.09	B 4010 TRX	Honda Mobilio	2A8HH4RT	RSPAD Gatot Soebroto	[Hapus]
2	Set GS dan BAUI	Agus Sunandi	Emma (Gud. Farmasi)	1 Agustus 2023 pukul 00.09	5 Agustus 2023 pukul 00.09	B 1126 TJ	DAIHATSU / LUXIO	SRIB01H4	RS Puser Orak Nasional	[Hapus]

Figure 11. Result Display

DISCUSSION

Based on research that has been done on the application of logistics delivery of medical devices at PT Mitra Fajar Selaras website-based, here are the conclusions that can be drawn:

- a. System effectiveness: the website-based logistics delivery application proves itself to be an effective tool in speeding up the medical device delivery process. This can be seen from the reduction in processing time and increased accuracy of information.
- b. Increased supervision: the implementation of this system has increased the ability to supervise the delivery of medical devices. With accurate tracking features, users can monitor the status of shipments in real - time.
- c. Minimization of errors: this system helps in reducing the potential for errors in delivery, thus contributing to the delivery of high quality medical devices to customers.

Related to the conclusion of the research results above, here are some suggestions that can be given to improve the application of logistics delivery of medical devices at PT Mitra Fajar Selaras:

- a. Continued development: consider continuing to develop and update this system by adding new features that can strengthen delivery management and monitoring of medical devices.
- b. User training: conduct regular training to users on how to use the system effectively. This will help maximize the benefits of existing applications.
- c. Interaction with customers: consider providing features that allow customers to track their own shipments and provide feedback on their experience.
- d. Data security: ensure that the system has a high level of data security to protect sensitive customer information and company operations.
- e. Continuity of support: establish a responsive and responsive technical support team to assist users in addressing app-related issues and queries.
- f. With the implementation of the medical device logistics delivery application on PT Mitra Fajar Selaras based on an effective and sustainable website, PT Mitra Fajar Selaras can continue to improve operational efficiency, service quality, and customer satisfaction.

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