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Cloud-based Cargo Management and Live Location Tracking

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ABSTRACT: Cargo Management System (CMS) refers to a software solution that helps businesses manage their cargo operations. Cargo management systems are essential for ensuring efficient and effective transportation of goods. However, several problems can arise in such systems. One common issue is the lack of real-time visibility into cargo movement, which can result in lost or misplaced shipments. Another issue is the lack of standardization in the industry, which can lead to confusion and errors in cargo tracking and handling. Additionally, the reliance on manual processes can increase the risk of errors and delays, as well as increase costs. These problems require innovative solutions and a collaborative effort from stakeholders in the industry to ensure efficient and secure cargo management. The Cloud-based Cargo Management and Live Location Tracking project aims to provide an efficient and reliable cargo management system that enables cargo service providers, customers, and drivers to manage their cargo transportation needs seamlessly. The project "Cloud-based Cargo Management and Live Location Tracking" is an advanced software solution designed for the transportation and logistics industry. The system enables cargo service providers to manage their fleet of trucks, track live locations of their trucks, and effectively manage bookings and payments. The system also provides a customer-facing portal that allows customers to search for available trucks, place bookings, track their cargo in real-time using OTP, and view their payment and booking history. The system provides a comprehensive solution for cargo management, offering features such as driver and truck management, booking management, payment management, and live location tracking. With the use of OTP for cargo tracking, the system ensures enhanced security and reliability in cargo transportation. Overall, the project aims to streamline the cargo management process, increase efficiency, and provide customers with a seamless experience.

KEYWORDS: Dreamweaver ,MySQL 5,Wampserver 2i

I. INTRODUCTION

Cargo, also known as freight, refers to goods or produce being transported from one place to another by water, air or land. Originally, the term "cargo" referred to goods being loaded onboard a vessel. These days, however, cargo is used for all types of goods, including those carried by rail, van, truck, or intermodal container. Though cargo means all goods onboard a transport vehicle, it does not include items such as personnel bags, goods in the storage, equipment or products to support the transport carried onboard. Cargo transport is mainly for commercial purpose for which an air waybill, bill of lading or other receipt is issued by the carrier.



Fig.1.Cargo management



Cargo Management System refers to a computer-based software system that is designed to manage and track the entire process of cargo transportation from one location to another. It includes functionalities such as booking and scheduling, cargo tracking, inventory management, billing and invoicing, and reporting. The system helps cargo service providers to efficiently manage their operations and provide better customer service by ensuring timely delivery and reducing errors and delays. It also helps customers to track their cargo in real-time and receive timely updates about the status of their shipments. Cargo Management Systems are useful technical solutions for transportation companies. These are online platforms designed to assist with freight and transportation. Cargo management systems assist transportation companies with the advanced shipping process, delivery tracking, carrier rates, paper trails, routes, and other activities. Every second, millions of pieces of cargo move around for one reason or another, and with the help of cargo management systems, it becomes easier to transport from one place to another.

II. EXISTING SYSTEM

• Manual Systems

The existing manual system of cargo management and tracking system involves managing the entire cargo shipment process manually. In this system, cargo booking, scheduling, tracking, and delivery activities are all performed manually, which can be time-consuming and prone to errors. Cargo booking is typically done by filling out paper forms, which are then processed manually by staff. This process can be slow, error-prone, and time-consuming. Once the cargo is booked, it is assigned a tracking number, and the shipment process begins. Cargo tracking is also done manually in the existing system. This involves updating the cargo status manually, which can be time-consuming and prone to errors. Staff must update the cargo status at every stage of the shipment process manually, which can lead to delays and inaccuracies. Overall, the existing manual system of cargo management and tracking is inefficient and prone to errors. The lack of automation and real-time updates can lead to delays, lost or misplaced shipments, and customer dissatisfaction. The manual system also lacks security features, making it susceptible to data breaches and unauthorized access, which can compromise the confidentiality and integrity of the cargo data.

• Desktop Software

The existing desktop software system of cargo management and tracking involves using a software application installed on a local computer to manage the cargo shipment process. This system is an improvement over the manual system as it provides automation and real-time updates, which can lead to increased efficiency and accuracy in cargo management. The desktop software system typically includes features such as cargo booking, scheduling, tracking, and delivery management. These features are accessible via a user interface that can be customized to meet the needs of the business. Cargo booking can be done through the desktop software system by entering shipment details into a digital form. The software then processes this information and assigns a unique tracking number to the shipment. Cargo tracking is also done through the software system, and the software automatically updates the shipment status as it moves through the shipment process. This feature provides real-time updates, which can help to reduce delays and improve accuracy. Overall, the existing desktop software system of cargo management and tracking provides automation, real-time updates, and increased efficiency and accuracy. However, this system still has some limitations, such as being dependent on the computer it is installed on, and it can be susceptible to data loss or corruption if the computer experiences technical issues. It also lacks the flexibility and accessibility of a web-based system that can be accessed from anywhere with an internet connection.

DISADVANTAGES

The existing manual and desktop software system of cargo management and tracking have several drawbacks, which limit their effectiveness in today's fast-paced and technologically advanced business environment. Here are some of the major drawbacks:

- **Inefficiency:** The manual system of cargo management and tracking is highly inefficient, as it involves a lot of paperwork, manual entry of data, and a lack of automation. Similarly, the desktop software system is also inefficient as it is limited to the computer it is installed on, which can result in delays and errors in the shipment process.
- **Lack of real-time updates:** The manual system of cargo management and tracking lacks real-time updates, which means that the status of shipments cannot be tracked in real-time. Similarly, the desktop software system may not provide real-time updates if the computer is not connected to the internet.
- **Limited accessibility:** The desktop software system is limited to the computer it is installed on, which means that it cannot be accessed from anywhere with an internet connection. This limits the accessibility of the system and makes it difficult to manage shipments when the user is not at the office.



- **Data loss and corruption:** The desktop software system is susceptible to data loss or corruption if the computer experiences technical issues. This can lead to delays and errors in the shipment process, and it can also result in the loss of important data.
- **Lack of flexibility:** The existing manual and desktop software systems lack flexibility, as they are not easily customizable or adaptable to the changing needs of the business. This can limit their effectiveness in managing shipments and may result in increased costs and decreased efficiency.

Overall, the existing manual and desktop software system of cargo management and tracking have several limitations that hinder their effectiveness. These limitations include inefficiency, lack of real-time updates, limited accessibility, data loss and corruption, and lack of flexibility.

III.ELEMENTATIONS

The Cloud-based Cargo Management and Live Location Tracking project offers numerous benefits and functionalities; it also has some limitations that need to be considered:

1. **Internet Dependency:** The system relies on internet connectivity for real-time tracking and communication between users, making it vulnerable to disruptions in internet services.
2. **Hardware Requirements:** To track truck locations in real-time, GPS-enabled devices need to be installed in each truck, which may require initial investment and ongoing maintenance.
3. **Data Security Concerns:** Storing sensitive information such as customer details, payment information, and truck locations in the cloud raises concerns about data security and privacy. Adequate measures need to be implemented to protect data from unauthorized access and breaches.
4. **Integration Challenges:** Integrating the system with existing infrastructure and legacy systems of cargo service providers may pose challenges and require additional development efforts.
5. **Scalability Issues:** As the number of users and transactions increases, the system may face scalability issues in terms of processing power, storage capacity, and network bandwidth.
6. **User Adoption:** Ensuring user adoption and acceptance of the new system among cargo service providers, customers, and drivers may require training, support, and incentives.
7. **Regulatory Compliance:** Compliance with regulations such as data protection laws, transportation regulations, and industry standards adds complexity to the development and operation of the system.
8. **Dependency on Third-Party Services:** The system may rely on third-party services for functionalities such as payment processing, SMS notifications, and mapping services, introducing dependencies and potential risks.
9. **Cost Considerations:** Implementing and maintaining the system, including hardware, software, infrastructure, and ongoing support, may incur significant costs for cargo service providers.
10. **Limited Coverage:** The effectiveness of the system may be limited in remote or underdeveloped regions with poor internet connectivity and infrastructure.

IV.PROPOSED SYSTEM

The proposed system, "Cloud based Cargo Management and Live Location Tracking" is a web-based application developed with Python and MySQL. It provides a cloud-based platform for managing cargo transportation and tracking cargo location in real-time. The system includes modules for cargo booking, payment, truck location tracking, driver management, customer tracking, notifications, and reports. The system aims to provide an efficient, reliable, and secure platform for cargo management and tracking, eliminating the drawbacks of the existing manual and desktop software-based systems. The booking management module enables customers to book cargo online and track their cargo in real-time. The payment management module facilitates secure online payments, ensuring that customers can pay for their cargo securely and conveniently. The truck location tracking module provides real-time updates on the location of the cargo, ensuring that the customer can track the cargo at all times. The driver management module enables the



management of drivers, their schedules, and their performance, ensuring efficient and effective cargo transportation. The customer tracking module provides a user-friendly interface for customers to track their cargo, view their order history, and update their personal information. The notifications module sends real-time updates to customers, drivers, and administrators, keeping them informed of the status of the cargo. The reports module generates comprehensive reports on cargo transactions, providing valuable insights into the performance of the cargo management and tracking system. The system's live location tracking feature using OTP adds an extra layer of security and transparency, ensuring that the cargo is being transported to the correct destination and providing real-time updates to customers. Thus, the proposed system will improve the efficiency and effectiveness of cargo management and tracking, leading to better customer satisfaction, increased revenue, and reduced costs. The key features of the proposed system are as follows:

- **Centralized platform:** The system provides a centralized platform for managing and tracking cargo, which allows businesses to access all cargo-related information in one place.
- **Real-time tracking:** The system offers real-time tracking capabilities, which provide businesses with up-to-date information on the location and status of their cargo.
- **Efficient communication:** The system provides efficient communication between stakeholders such as shippers, carriers, and customers, which helps to minimize misunderstandings and delays in cargo delivery.
- **Automated processes:** The system automates cargo management processes, which reduces the workload on staff and minimizes the risk of errors.
- **Data analytics and reporting:** The system offers data analytics and reporting capabilities, which help businesses to identify bottlenecks, track cargo, and manage resources effectively.
- **Integration with other logistics and transportation systems:** The system can integrate with other logistics and transportation systems, which provides businesses with a comprehensive solution for managing their cargo.

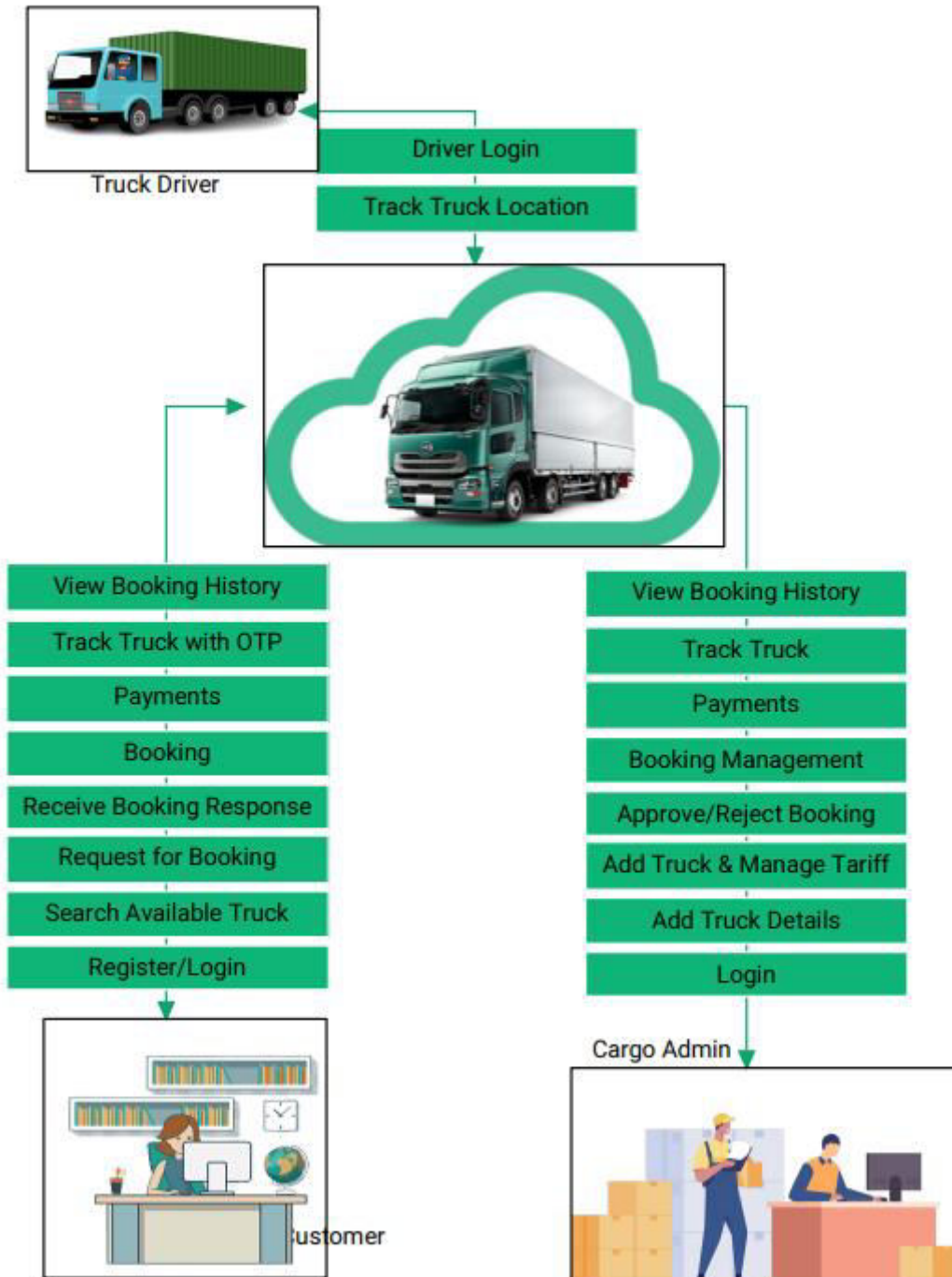
The proposed cloud-based cargo management and tracking system offers a comprehensive solution to the challenges faced by businesses in managing and tracking their cargo. It provides businesses with real-time tracking capabilities, efficient communication, automation of processes, data analytics and reporting, enhanced data security and privacy, and integration with other logistics and transportation systems.

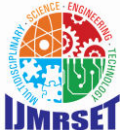
Benefits of the Proposed System

- Empowers users with complete control over their digital identities.
- Utilizes decentralized blockchain for tamper-resistant data storage.
- Implements masked credential generation for secure and private data handling.
- Blockchain ensures transparent and traceable user interactions.
- Machine learning predicts website trustworthiness for informed decisions.
- Accommodates user preferences with versatile registration methods.
- Integrated module provides instant updates on user processes.



V. SYSTEM ARCHITECTURE





VI.RESULT



Fig 2 : Admin Login

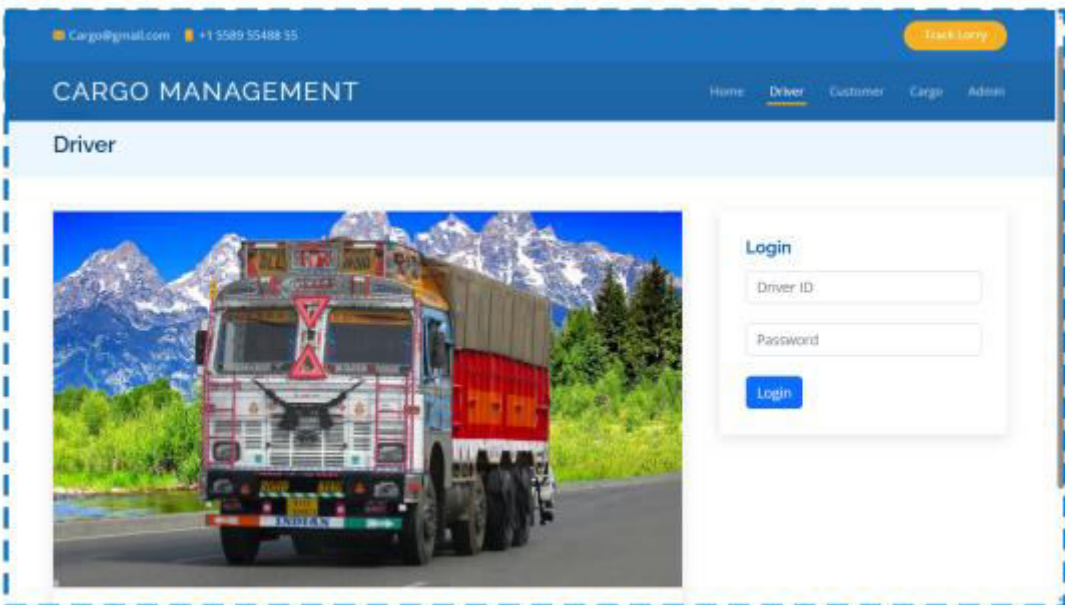


Fig.3.Driver

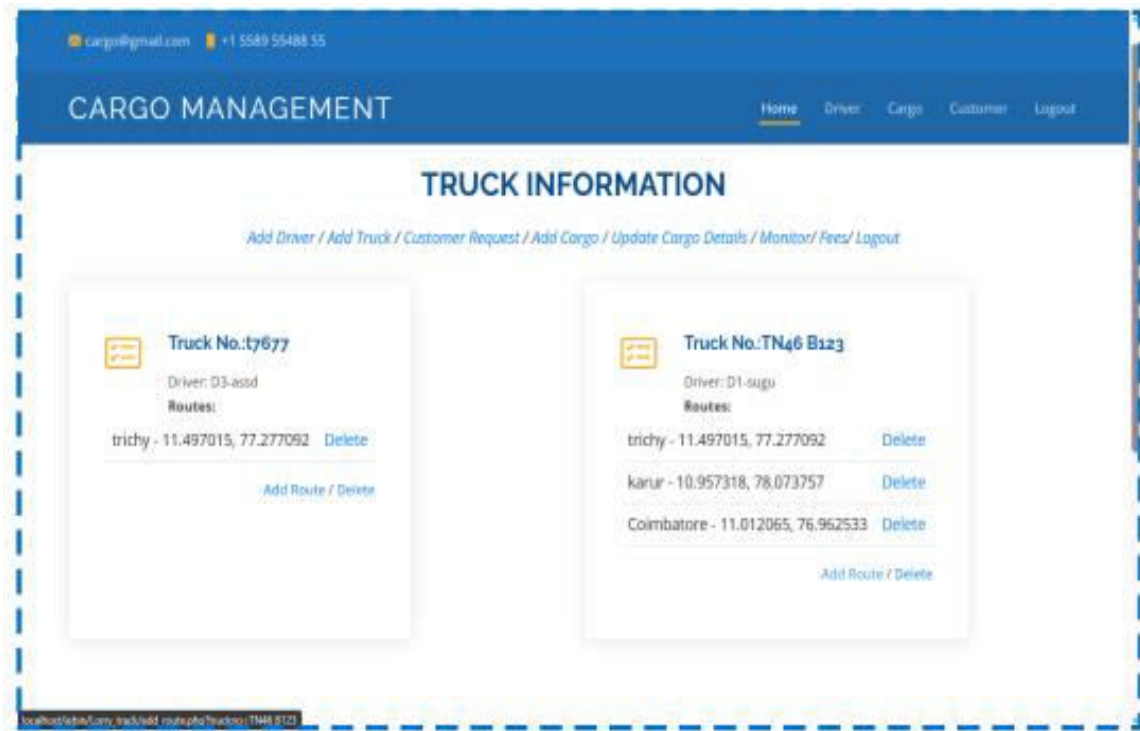


Fig.4.Truck information

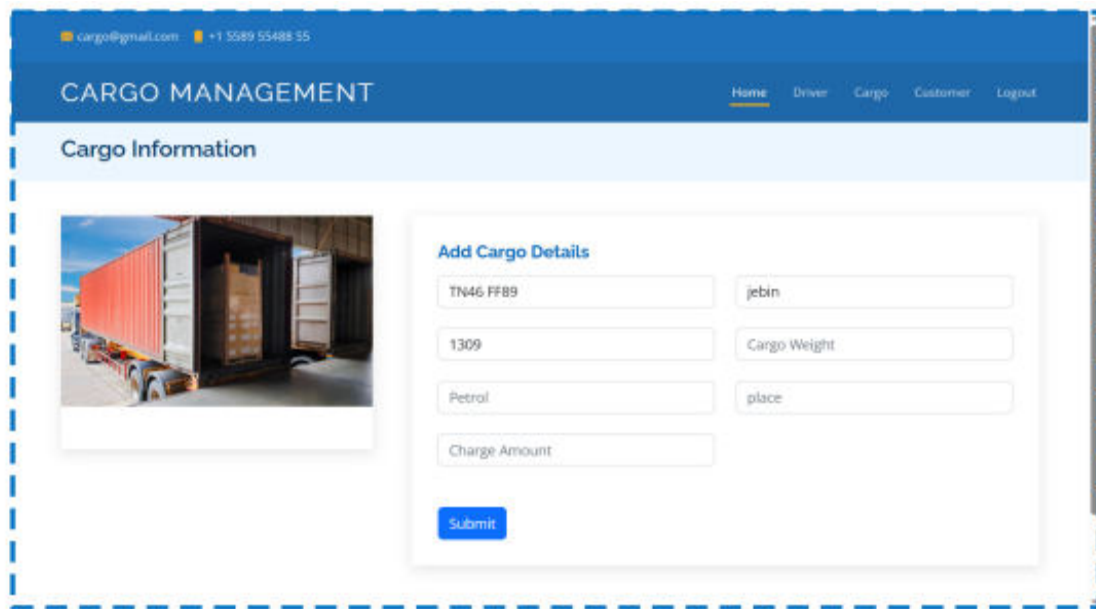


Fig.5.Cargo information



Fig.6.Cargo Management



Fig.7.Cargo management

VII.CONCLUSION

The "Cloud based Cargo Management and Live Location Tracking" project has been developed with the objective of providing an efficient and user-friendly system for managing cargo transportation and tracking the real-time location of trucks. The project covers various modules such as Cargo Service Provider Admin, Customer, and Driver. The project has been developed using the latest technologies and frameworks and has been rigorously tested to ensure that it meets the requirements and specifications. The project is scalable and can be easily customized to suit the specific needs of different organizations. The project includes features such as real-time truck tracking, booking management, payment management, and reporting. These features make the system efficient and easy to use for all the stakeholders involved in cargo transportation. The feasibility study of the project has indicated that the system can be easily implemented and can provide significant benefits to organizations involved in cargo transportation. The testing phase of the project has



been successful, and the system has been thoroughly tested to ensure that it is reliable, secure, and meets the required standards. The test report indicates that the system is functioning as expected and that there are no major issues or bugs. In conclusion, the "Cloud based Cargo Management and Live Location Tracking" project is a robust and reliable system that can significantly improve the efficiency of cargo transportation and tracking. The system is user-friendly, scalable, and customizable, and can be easily implemented by organizations involved in cargo transportation.

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