

Midocean University

College of Management

Department of Project Management



**Developing Current Trucks Permits System for Transportation Services in Saudi
Arabia to be Aligned with 2030 Vision in Transport Services Sector**

Prepared by:

(Leader) Bashayer Alhadrami 222001201

Abdelaziz Alotit 222001179

Supervised by:

PhD.Waleed Sulaiman

PhD. Alfaisal Abdelhameed

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ABSTRACT :

This study addresses the imperative need for a streamlined and efficient system in the development and management of truck permits. Truck permitting plays a pivotal role in the transportation industry, influencing route planning, compliance with regulations, and overall logistics operations. The objective of this research is to propose a comprehensive framework for developing and optimizing truck permit processes. The study begins by conducting an in-depth analysis of existing truck permit systems, identifying bottlenecks, and evaluating the challenges faced by logistics and transportation companies. It explores the impact of outdated permitting processes on operational efficiency, compliance issues, and the potential for disruptions in supply chain management. To address these challenges, the proposed framework incorporates cutting-edge technologies, including permit management software, real-time tracking systems, and route optimization tools. The study emphasizes the importance of a centralized permit management system that automates application processes, ensures timely renewals, and facilitates seamless collaboration with relevant transportation authorities. This research contributes to the field by providing a holistic and forward-looking approach to the development of truck permitting systems. The proposed framework seeks to not only address current challenges but also to future-proof the permitting process by incorporating adaptable technologies and fostering .collaboration between stakeholders

1. INTRODUCTION

Saudi Arabia is the largest country in the Middle East, with a diverse geography ranging from deserts to mountains.

It is home to a population of over 34 million people. The country is a global energy powerhouse, with a significant reliance on oil revenues. As such, efficient land transport is critical for both domestic and international trade.

Saudi Arabia has an extensive road network, with over 85,000 kilometers of roads, including a well-maintained highway system that connects major cities and regions.

Technology plays a vital role in land transport with the introduction of smart traffic management systems and GPS- based navigation. These technologies help manage traffic and provide real-time information to commuters.

Land transport is a significant contributor to the Saudi Arabian economy, enabling the transportation of goods, supporting logistics and trade, and providing employment in the transport sector.

We recognize the significance of a well-organized permitting process in ensuring the smooth operation of our truck fleet and complying with regulatory requirements and we believe that a dedicated Truck Permits System will play a pivotal role in achieving this objective.

We will develop an intuitive online platform that simplifies the application process for truck permits, reducing administrative overhead and processing times. This user-friendly interface will allow our drivers and planning team to submit and track permit applications with ease.

The proposal from our project is to develop and implement a modern Truck Permits System, an online platform that streamlines the permit application and approval process. This user-friendly system will include real-time tracking, automation for tracking permit expirations, regulatory compliance tools, a secure documentation repository, and a customer portal. It aims to significantly reduce processing times, improve compliance, enhance documentation management, and provide our clients with easy access to relevant permit information. This solution will result in operational efficiency, transparency, and an overall improved customer experience for our transportation services.

2. PROBLEM STATEMENT

The current system for obtaining and managing truck permits in our transportation services is inefficient and time-consuming. It leads to delays in permit processing, compliance challenges, increased administrative burden, and a lack of transparency for both our team and clients. This outdated system is hindering the smooth operation of our truck fleet, potentially resulting in compliance violations and service disruptions.

3. RESEARCH OBJECTIVES AND GOALS

The primary objective is to create an efficient and user-friendly system that simplifies the application and approval process for truck permits, reducing administrative overhead adding to that:

Ensure that the Truck Permits System helps our company and drivers remain compliant with local and national regulatory requirements, reducing the risk of violations.

- Develop a centralized repository for essential permit documents, which will facilitate auditing, transparency, and accountability.
- Enable real-time tracking features within the system to monitor permit application status and ensure timely approvals.
- Introduce a customer portal that allows our clients to access relevant permit information, thereby promoting transparency and strengthening client relationships.

A primary goal is to significantly reduce the time it takes to apply for and obtain truck permits, making the process more efficient. Also, to minimize the risk of compliance violations and penalties through accurate, up-to-date regulatory information. Improve transparency and accountability by maintaining well-organized permit documentation and a clear tracking system. Ensure that the customer portal and real-time tracking features enhance the customer experience, leading to increased satisfaction and loyalty. The goal is to enhance the

operational efficiency of our transportation services by eliminating delays, reducing administrative overhead, and improving overall compliance. These objectives and goals provide a clear understanding

of what the proposed Truck Permits System aims to achieve, including efficiency, compliance, documentation management, customer

satisfaction, and operational improvements. They serve as a framework for measuring the success of the project once it is implemented.

4. LITERATURE REVIEW



In Saudi Arabia “Naql” government platform now starts implement in the beginning of 2023 it is help full to have more information about cargo inside the container and for which customer.

All valuable information will be found in “Naql” platform but not connection directly with customer on real time, not easy to access to the information once needed.

Advantage:

- Availability for cargo details, drivers' information, location, contact details and container weight.
- Use waybill as permits between Saudi Arabia Cities.
- Expiration date.

Disadvantage:

- Inaccurate information
- Information not readily available
- Not linked to the customer at the same time
- The permit expires before the process is completed

Dubai employs various systems for managing logistics and truck access, especially in locations such as ports and free zones. These systems often involve a combination of digital technologies and security measures. However, specific details can change, and new systems may be implemented. For the latest and most accurate information regarding the systems used in Dubai for truck gate passes, I recommend checking with the relevant authorities or organizations responsible for transportation and logistics in the emirate.

5. RESEARCH METHODOLOGY

This project will use quantitative research methodology to see people's knowledge and their awareness about the current system and if they will support new projects to make the process easier and more active.

The objective of quantitative research is to quantify data and generalize results from a sample to a larger population, the method used to collect the data is survey.

We implemented online survey on 24 employees working in the logistics field (transportation companies) in Saudi Arabia.

Tools used in research Google Scholar tools posted via WhatsApp.



Developing trucks permits for
transportation services (transport
services sector) تطوير تصاريح شاحنات النقل
البري (قطاع خدمات النقل البري)

سنقوم بتطوير منصة سهلة الاستخدام عبر الإنترنت تعمل على تبسيط عملية تقديم طلبات الحصول على تصاريح الشاحنات، مما يقلل من النفقات الإدارية وأوقات إتمام العملية.

Google Forms:

Free and user-friendly.

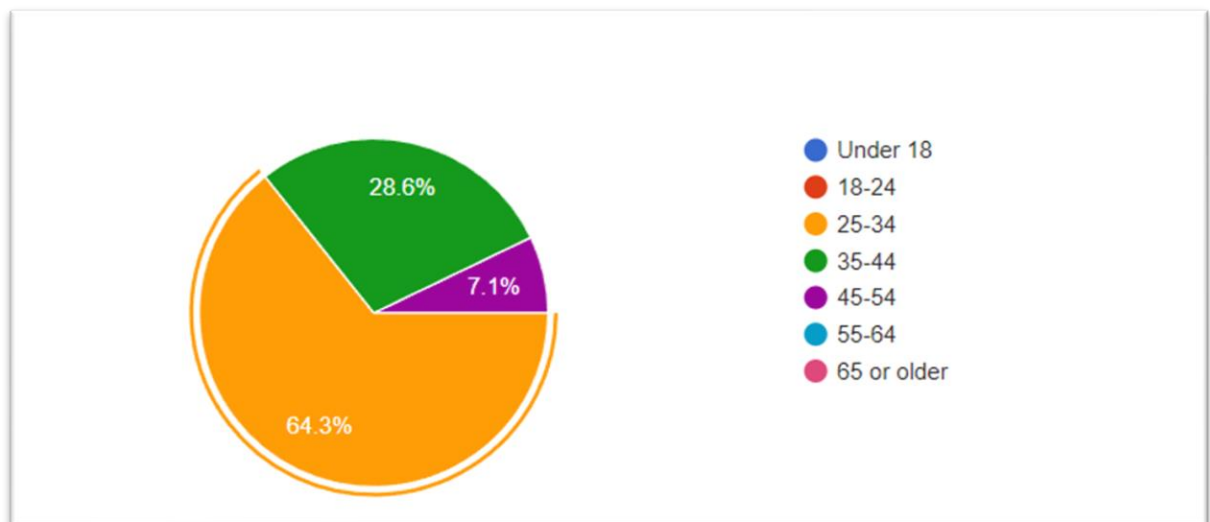
Integration with Google Sheets for easy data analysis.

Customizable design and various question types.

Survey:

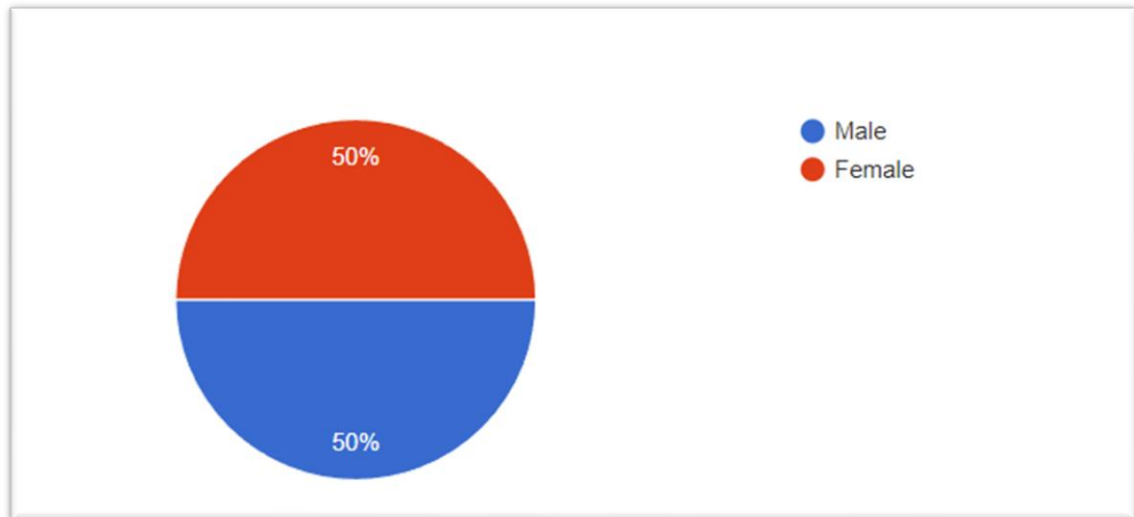
As a part of the project research a survey have been done and sent to 24 random people to answer some questions that is related to the subject and it includes,

• Age:



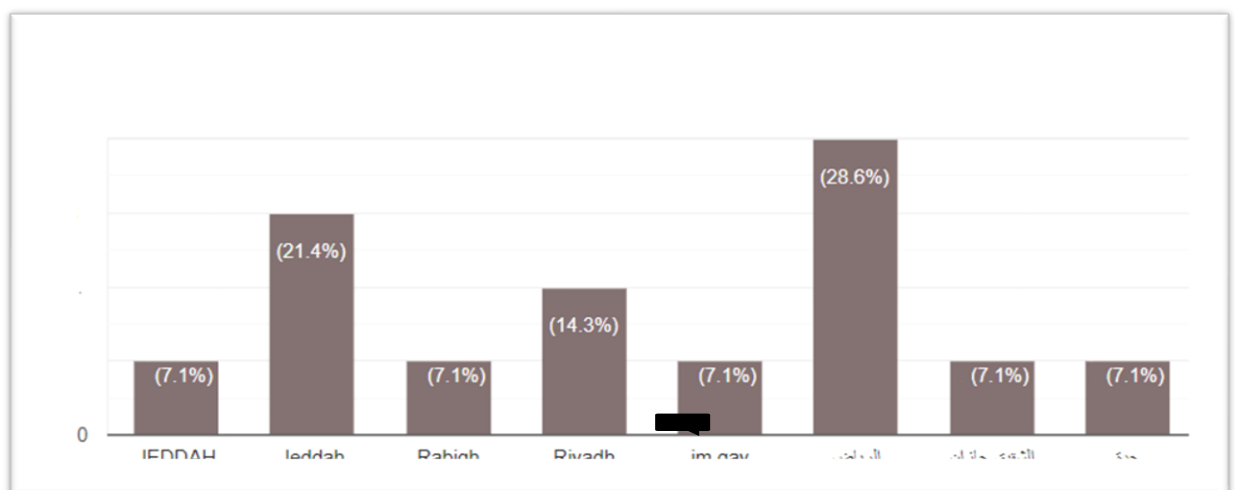
As shown in the figure that the age group was between 25 – 54 and the bigger group was in the age 25-34 by 64.3%.

• Gender:



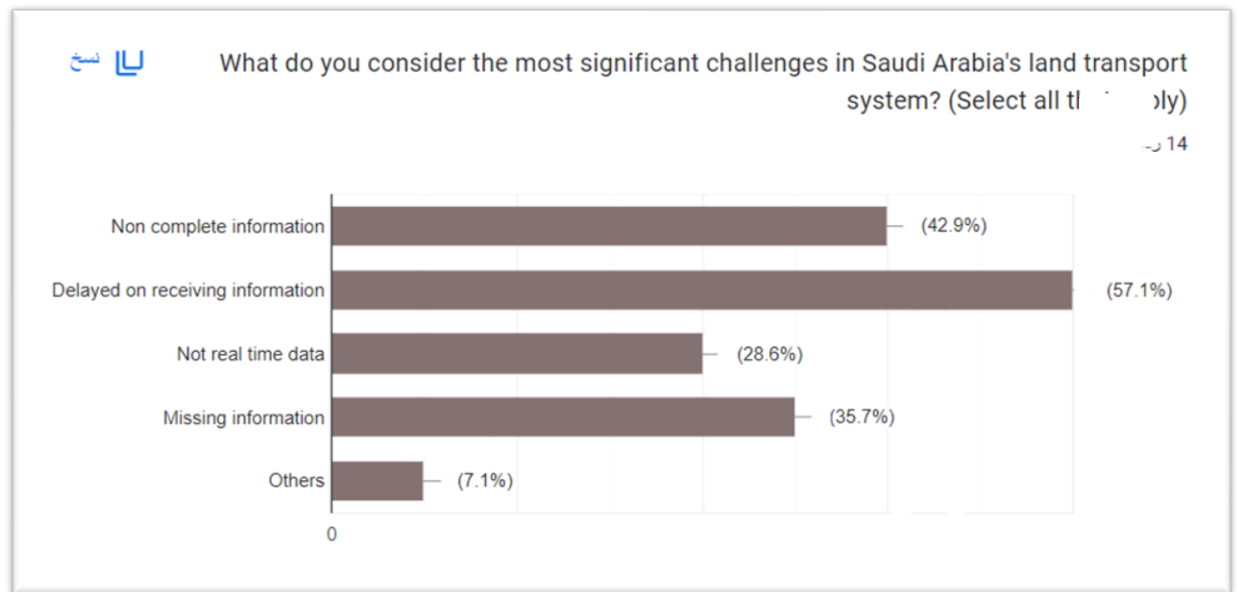
As shown in the figure that the group was split into 50% each for the males and females.

- Location (City/Region)



As shown in the figure the location of each survey taker city they are from where Riyadh was the highest percent out of the rest by 28.6%.

- What do you consider the most significant challenges in Saudi Arabia's land transport system? (Select all that apply)



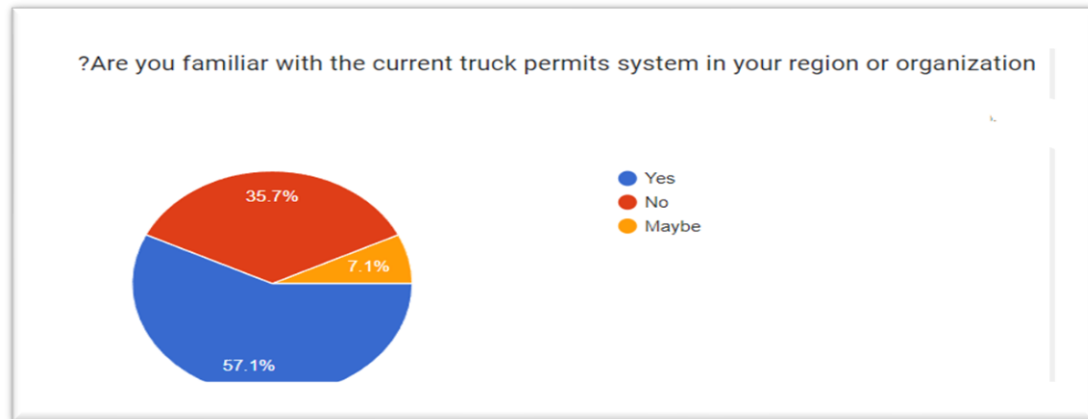
As shown in the figure that the answer with the highest percent by 57.1% is for Delayed on receiving information and the lowest by 28.6% is for Not real time data.

- If you could suggest one improvement to the land transport system in Saudi Arabia, what would it be?



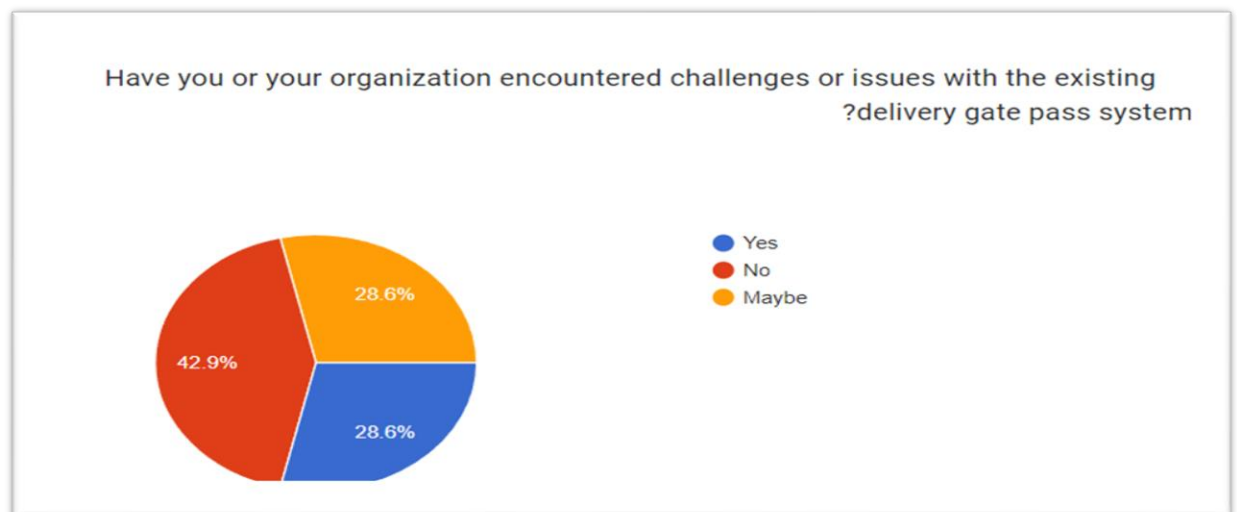
As shown in the figure the survey takers gave some suggestions to improve the land transport in KSA.

- Are you familiar with the current truck permits system in your region or organization?



As shown in the figure only 57.1% was familiar with truck permits system, and 35.7% is not familiar with it.

- Have you or your organization encountered challenges or issues with the existing delivery gate pass system?



As shown in the figure that most of the survey that 42.9% of people have encountered issues.

- What specific changes or improvements would you suggest enhancing the effectiveness of the truck permits system?

f yes, please briefly describe the challenges or issues you've experienced with the current delivery
.truck permits system

Time & cost

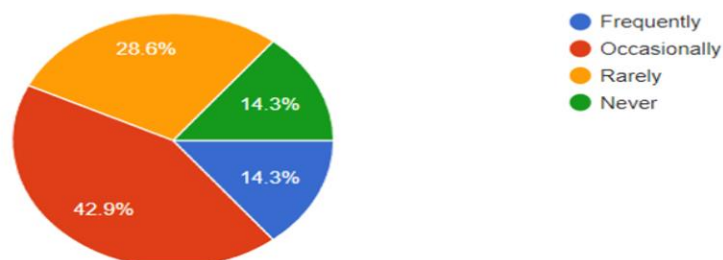
Not showing on real time and not accurate details

I don't have personal experiences, but challenges commonly associated with current delivery truck permit systems include bureaucratic delays, complex application processes, difficulty in obtaining permits, and potential inefficiencies in coordinating multiple permits across different jurisdictions. Additionally, concerns about the environmental impact of delivery trucks and the need for sustainable practices may pose .challenges within permit systems

As shown in the figure people gave an open answer to the challenges they experienced with the current system.

- How often do you experience delays or complications related to obtaining or using truck permits?

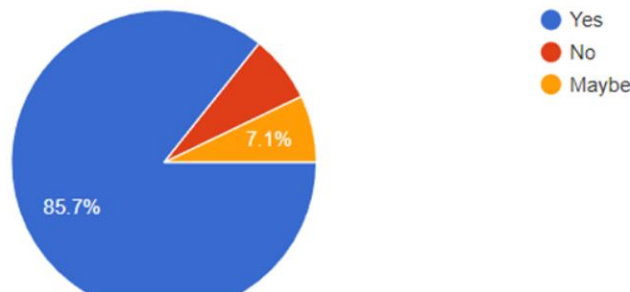
How often do you experience delays or complications related to obtaining or using
?truck permits



As shown in the figure survey takers face issues while using the system occasionally almost never.

- Do you believe that a digital or online system for applying for and managing truck permits would be more efficient than the current paper-based system?

Do you believe that a digital or online system for applying for and managing truck
?permits would be more efficient than the current paper-based system



As shown in the figure 85.7% of people believe that applying a system for tracking would be very efficient and helpful.

- What features or functionalities would you expect from an ideal digital delivery gate pass system? (e.g., real-time tracking, automated approval process, mobile app access.

What features or functionalities would you expect from an ideal digital delivery gate pass system? (e.g., real-time tracking, automated approval process, mobile app access)

Ai

Yes with all

An ideal digital delivery gate pass system should include the following features and functionalities: 1. **Real-time Tracking:** Enable real-time tracking of delivery vehicles to provide accurate information on their location and status. 2. **Automated Approval Process:** Implement an automated approval process to expedite gate pass issuance, reducing manual intervention and processing time. 3. **Mobile App Access:** Provide a mobile application for easy access to the gate pass system, allowing users to apply for, track, and manage gate passes conveniently. 4. **User-Friendly Interface:** Design an intuitive and user-friendly interface to enhance the ease of use for both applicants and administrators. 5. **Integration with GPS Systems:** Integrate with GPS systems to enhance accuracy in vehicle tracking and streamline the gate pass verification process. 6. **Electronic Documentation:** Support electronic submission and storage of required documents, reducing paperwork and improving document management. 7. **Customizable Approval Workflows:** Allow customization of approval workflows to accommodate different types of deliveries and varying authorization requirements. 8. **Notifications and Alerts:** Implement a notification system to keep users informed about the status of their gate pass applications, approvals, or any other relevant updates. 9. **Security Measures:** Incorporate robust security measures to protect sensitive information and prevent unauthorized access to the gate pass system. 10. **Data**

As shown in the figure survey takers shared their thoughts and idea of what they believe it would be helpful to be as feature in any tracking system.

We conclude from previous studies and above questionnaire that managing truck permits efficiently is crucial for smooth transportation operations. Here are steps to handle truck permits effectively:

1. Understand Permit Requirements:

- Familiarize yourself with the specific permit requirements for each jurisdiction your trucks will pass through. This includes understanding weight limits, size restrictions, and any special permits needed.

2. Centralized Permit Management:

- Establish a centralized system for managing permits. This could be a digital platform that tracks permit expiration dates, renewal requirements, and application status.

3. Use Permitting Software:

- Invest in permit management software that automates the application process, tracks permit status, and sends reminders for renewals.

4. Stay Informed on Regulations:

- Regularly monitor changes in transportation regulations to ensure that your permits remain compliant. This includes keeping abreast of any updates or modifications to permit requirements.

5. Collaborate with Authorities:

- Build positive relationships with relevant transportation authorities. This can facilitate smoother permit processing and help resolve issues more efficiently.

6. Plan Routes Effectively:

- Incorporate permit requirements into route planning to avoid unexpected issues or delays. Consider using route optimization software to factor in permit constraints.

7. Regular Audits:

- Conduct regular audits of your permit records to ensure accuracy and compliance. This includes reviewing permits against actual routes and loads.

8. Employee Training:

- Train your drivers and logistics staff on the importance of adhering to permit regulations. Ensure they understand the consequences of operating without the necessary permits.

9. Renew Permits Promptly:

- Establish a proactive approach to permit renewals. Set up reminders well in advance of expiration dates to avoid disruptions to your operations.

10. Document Management:

- Keep digital and hard copies of all permits in an organized manner. This aids in quick retrieval and ensures you have the necessary documentation if inspections occur.

11. Emergency Procedures:

- Develop contingency plans for situations where a permit issue arises unexpectedly. This might involve having alternative routes or a rapid response team to resolve permit-related challenges.

12. Utilize Permitting Services:

- Consider outsourcing permit management to specialized services that can handle the entire permitting process, ensuring compliance and reducing the administrative burden on your team.

Efficient management of truck permits involves a combination of technology, proactive planning, and ongoing compliance monitoring. Regularly reviewing and optimizing your permit management processes can contribute to smoother transportation operations.

6. PROJECT FEATURE

A "New Smart trucks Permit for Transportation Services "is an innovative idea that can bring efficiency and transparency to the delivery process, benefiting both the government and customers. Here is how this concept can work:

- **Integration with Government Systems:**

The smart permit system can be integrated with government databases and systems to ensure that all deliveries are compliant with local regulations and tax requirements. This integration allows government authorities to have real- time visibility into the movement of goods within their area.

- **Online Application Process:**

Delivery companies and individual couriers can apply for permits online through a user-friendly platform. They would provide information about the nature of the goods being transported, delivery routes, and any required documentation.

- **Real-time Approval and Tracking:**

The system can automate the approval process, with real-time verification of the permit application. Once approved, delivery personnel receive a digital permit to carry out their deliveries.

- **Digital Documentation:**

The system can store and manage all required documentation digitally, reducing paperwork and streamlining

compliance. This includes digital copies of invoices, tax records, and other essential documents.

- **Real-time Tracking and Monitoring:**

Government authorities can monitor all permitted deliveries in real time, allowing them to verify compliance with tax and regulatory requirements. This feature enhances transparency and ensures that deliveries follow the approved routes and schedules.

- Mobile Access:

Delivery personnel can carry digital permits on their mobile devices, making it easy to access and present to authorities if required. The permits can be equipped with QR codes for quick verification.

- Customer Visibility:

Customers can also access a tracking system to monitor the status of their deliveries in real time. They can confirm the legitimacy of the delivery and receive notifications when the delivery is in progress or complete.

- Notifications and Alerts:

The system can send alerts and notifications to both delivery personnel and government authorities for any deviations from the approved routes or schedules, ensuring timely intervention if necessary.

- Compliance Reports:

The smart permit system can generate reports on delivery compliance, including tax records, routes, and documentation, making it easier for delivery companies to provide data to tax authorities as needed.

- Data Security:

Strong data security measures are essential to protect sensitive information, and the system should comply with data protection regulations. Implementing a "New Smart Permit for Delivery" system can streamline the delivery process, enhance transparency, and improve compliance with government regulations. It also offers a better experience for customers, who can track their deliveries in real time.

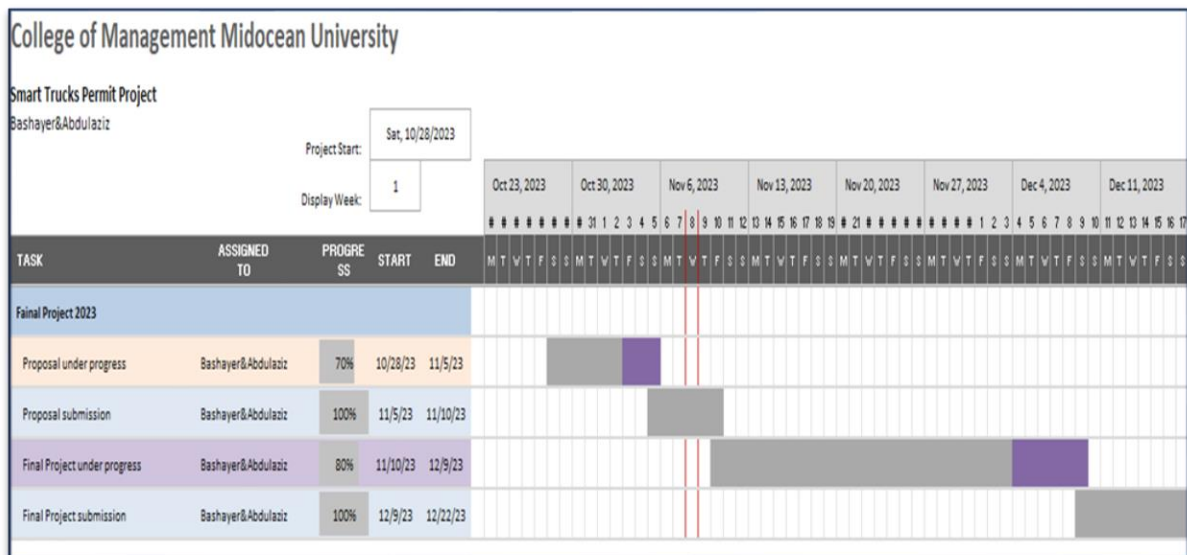
Basic outline for the form of a smart truck permit system:

Developing a smart truck permit system involves integrating advanced technologies to streamline the permitting process, enhance efficiency, and ensure regulatory compliance. Here's a basic outline for the form of a smart truck permit system:

1. **Digital Application Form:** Replace traditional paper-based forms with a user-friendly digital application form accessible via a dedicated online portal or mobile app. An intuitive online form accessible through a web portal or mobile app where users can fill in details such as vehicle information, cargo specifications, and travel dates digitally.
2. **User Authentication:** Implement secure user authentication mechanisms to ensure that only authorized personnel can submit permit applications. This may involve multi-factor authentication for added security. Multi-factor authentication methods like password, fingerprint recognition, or one-time passcodes to ensure secure access to the permit application system.
3. **Automated Data Validation:** Integrate automated data validation tools to ensure that all required information is accurately provided, reducing errors and processing delays. Real-time validation checks to ensure that entered data, such as vehicle dimensions and weight, adheres to permit regulations, reducing errors and delays.
4. **Real-Time Tracking:** Include a real-time tracking feature for permit applications, allowing applicants to monitor the status of their permits and receive instant updates on approvals, rejections, or additional requirements. A tracking interface that allows applicants to monitor their permit status in real-time, providing updates at each stage of the approval process.
5. **Route Optimization Integration:** Integrate route optimization algorithms to assess and recommend the most efficient and compliant routes based on permit restrictions and regulations. Integration with a route optimization system that analyzes permit restrictions and suggests the most efficient and compliant route for the journey.
6. **Document Upload and Verification:** Enable applicants to upload supporting documents digitally, and implement a verification system to ensure the authenticity and accuracy of the provided documentation. Users can upload digital copies of required documents (e.g., insurance certificates) directly to the platform, with an automated verification system ensuring authenticity.
7. **Electronic Signatures:** Incorporate electronic signature capabilities for the submission and approval of permit applications, reducing the need for physical signatures and expediting the

approval process. A feature enabling users and permit authorities to electronically sign and approve permits, eliminating the need for physical signatures and paperwork.

8. **Automated Fee Calculation:** Implement an automated fee calculation system based on factors such as route distance, vehicle weight, and permit type, ensuring accurate and transparent fee assessments. A dynamic fee calculator that considers factors like route distance, vehicle specifications, and permit type, providing accurate fee assessments for each application.
9. **Centralized Permit Management Dashboard:** Develop a centralized dashboard for permit authorities to manage and review all permit applications efficiently. This dashboard should provide real-time insights and analytics. A dashboard accessible to permit authorities, providing a centralized view of all permit applications, their statuses, and relevant analytics for efficient decision-making.
10. **Alerts and Notifications:** Implement a notification system that sends automated alerts to applicants and relevant authorities regarding the status of permit applications, upcoming expiration dates, and any regulatory changes. Automated email or SMS notifications sent to applicants when their permit is approved, rejected, or requires additional information, keeping them informed throughout the process.
11. **Machine Learning for Pattern Recognition:** Utilize machine learning algorithms to analyze historical data and identify patterns, enabling proactive decision-making, and predicting potential issues in the permitting process. Machine learning algorithms analyzing historical permit data to identify patterns, predict peak application times, and proactively address potential bottlenecks.
12. **Blockchain for Security:** Integrate blockchain technology for enhanced security and transparency, ensuring the integrity of permit records and preventing unauthorized alterations. Implementation of blockchain to create an immutable and transparent ledger of permit transactions, ensuring the security and integrity of the permit records.
13. **Comprehensive Reporting:** Develop a reporting module that generates comprehensive reports on permit approval rates, processing times, and other key performance indicators to facilitate data-driven decision-making and continuous improvement. Implementing a smart truck permit system involves collaboration with relevant stakeholders, adherence to industry standards, and compliance with legal and regulatory requirements. Regular updates and refinements based on user feedback and technological advancements contribute to the long-term success of the system. A reporting module generating detailed reports on permit approval rates, processing times, and other key performance metrics, aiding authorities in data-driven



8. SUMMARY :

This research focuses on optimizing truck permit processes to improve the efficiency and effectiveness of logistics operations. Truck permits play a critical role in the transportation industry, influencing route planning, regulatory compliance, and overall supply chain logistics. The primary objective of our study is to develop a framework that streamlines and enhances truck permit processes, addressing current challenges and preparing for future industry demands. The research begins with an extensive analysis of existing truck permit systems, identifying common pain points and operational inefficiencies. These challenges include delays in permit processing, compliance issues, and disruptions in supply chain management due to outdated permitting practices. Our proposed framework incorporates innovative technologies to revolutionize the truck permit landscape. Central to this framework is a robust permit management system that leverages automation, real-time tracking, and route optimization tools. This centralized approach aims to simplify the application process, ensure timely permit renewals, and foster collaboration with relevant transportation authorities. These technologies are anticipated to enhance data security, transparency, and decision-making within the permitting domain. To validate the effectiveness of our framework, the research includes case studies and simulations, measuring key performance indicators such as processing times, cost-effectiveness, and compliance rates. The goal is to demonstrate tangible improvements achievable by implementing the proposed framework. Our research contributes to the field by offering a comprehensive, forward-thinking solution to the challenges faced by logistics companies in managing truck permits.

9. RECOMMENDATIONS:

Certainly, the process for obtaining a truck permits can vary depending on the specific facility or location. Here are additional details that might be part of the process:

1.Documentation:

- **Vehicle Information:** Provide details about the truck, including registration number, make, model, and capacity.
- **Driver Information:** Submit identification details of the driver, including a valid driver's license.
- **Cargo Details:** Specify information about the type of cargo being transported.

2.Security Checks: - Some facilities may conduct security checks on both the truck and the driver. This can include background checks and ensuring compliance with security regulations.

3.Appointment Scheduling: - In some cases, appointments may need to be scheduled for the truck's arrival to ensure efficient processing and minimize wait times.

4. Customs and Regulatory Compliance: - If the facility is involved in international trade, there may be additional requirements to comply with customs regulations and international trade laws.

5.Electronic Systems: - Many modern facilities use electronic gate pass systems. This can include online applications, electronic submission of documents, and digital issuance of gate passes. For specific and up-to-date information about the truck gate pass process in a particular location, it's recommended to contact the relevant authorities or the management of the facility directly.

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تطوير النظام الحالي لتصاريح الشاحنات الخاصة بخدمات النقل البري في
المملكة العربية السعودية لمواكبة رؤية 2030 في قطاع خدمات النقل

إعداد الطالب/

بشاير الحضرمي 222001201

عبد العزيز العطيط 222001179

إشراف/

د. وليد سليمان

د. الفيصل عبد الحميد

العام الدراسي:

2023