Portal for Cab and Freight Services

Introduction:

A transportation portal is a digital platform designed to streamline cab services, freight transportation, and logistics management for both businesses and individual customers. Our client specializes in passenger transportation, specifically focusing on providing safe and reliable transportation for school children to and from school, as well as direct airport cab services. They manage a fleet of vehicles and drivers to offer these services.

Previously, the client relied on an outdated, inefficient manual system for handling bookings, dispatching vehicles, invoicing, and tracking deliveries. They sought a modernized portal with automated features for fleet management, real-time vehicle tracking, and seamless integration of invoicing and tracking functionalities.

Client Details:

Name: Confidential | **Industry:** Transportation & Logistics | **Location:** USA

Technologies:

C#, .NET, .NET core, Windows Scheduler, SSMS, AWS, JavaScript, React JS, HTML, CSS, Node.js, Google Maps API, Google Sheet API

Third Party Tools: Autofleet, Gmail, Google Maps

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Project Description:

Challenges:

The major goal of this project was to streamline the process of addressing student requests and managing transportation services through a fully functional portal. The client needed an automated dispatch system, real-time vehicle tracking, and integration with Autofleet. Some key challenges included:

- CMS request processing - importing and analyzing
- Driver portal- request offer
- Offer analysis and ride allotment
- Communicating with parents and CMS
- Integrating with Autofleet - GPS tracking and fare
- Automated data import system
- Driver eVoucher functionality
- eVoucher reminder functionality
- Automated invoice generator

CMS Request Processing - Importing and Analyzing Requests

The client used to manually handle student transportation requests, which resulted in inefficiencies and frequent data handling errors. The lack of a streamlined process for importing and analyzing requests made it challenging to track and prioritize service needs effectively.

Our Approach: We implemented an automated CMS request processing system that imports student transportation requests directly from Google Sheets. The system automatically classifies and analyzes the requests based on predefined criteria such as student type, timing, and location.

Benefits and Results: This automation significantly reduced manual processing time and minimized human error. It also allowed for more efficient prioritization of requests, enhancing response times and overall service management.

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Driver Portal - Managing Request offers

The previous system required the admin team to manually check available requests, communicate with drivers, and assign trips, which was time-consuming and prone to errors. The process lacked automation and often led to miscommunication and missed opportunities.

Our Approach: We developed a driver portal that allows drivers to view available transportation requests in real time. The system enables driver to select the offers based on their availability, proximity to the pickup location, journey path and vehicle suitability. It also notifies drivers of new requests and updates in real time.

Benefits and Results: The driver portal streamlined the offer management process, reducing the chances of missed or delayed rides and improving coordination between drivers and the system. This led to better fleet utilization and fewer delays in student transportation.

Offer analysis and Ride Assignment

Previously, the process of analyzing ride offers and assigning the most suitable drivers was manual, leading to inefficiencies and delays in ride allocation.

Our Approach: We developed an automated offer analysis system that evaluates available rides based on factors such as location, time, and vehicle type. Interested drivers can express their interest, and the system presents a list of these drivers to the admin team. The team can then assign rides to the most suitable candidates.

Benefits and Results: Automating the assignment process improved efficiency significantly by ensuring the best match between requests and available drivers. This reduced the time taken for ride allocation and increased the accuracy of assignments, leading to better customer experiences.

Communication with Parents and CMS

The previous manual communication system for updating parents and CMS was slow. It often led to missed updates or confusion regarding ride schedules.

Our Approach: We integrated an automated communication system within the portal to send real-time notifications to parents and CMS about ride statuses, delays, and other critical updates via email and SMS.

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Benefits and Results: The automated communication system kept all parties informed, reducing confusion and fostering trust. This resulted in a more transparent and reliable transportation service for both parents and CMS.

Autofleet Integration

Integrating GPS tracking and fare management with Autofleet presented a significant challenge, as the existing system lacked real-time vehicle location visibility and automated fare calculations.

Our Approach: We integrated Autofleet with real-time GPS tracking, allowing the client to monitor vehicle locations, track routes, and optimize dispatch decisions. We also automated fare calculations based on distance, time, and other variables to ensure accurate billing for each ride.

Benefits and Results: This integration enabled better route optimization, transparent and accurate billing, and increased operational efficiency, leading to improved customer satisfaction.

Automated Data import system

Previously, data such as student information, pickup/drop-off times, locations, and fares were manually entered into excel sheets and later analyzed and processed.

Our Approach: We developed an automated data import system using Gmail API and Windows Scheduler to pull data from Autofleet via email. The system automatically processes and updates records, ensuring timely and accurate data updates.

Benefits and Results: The automated data import system improved data accuracy, reduced manual effort, and ensured real-time updates across the portal. This enabled the client to make informed decisions based on up-to-date information and enhanced overall operational efficiency.

Driver eVoucher functionality

The previous system involved manually uploading eVouchers for drivers, which was time-consuming and error-prone. It lacked integration with the transportation platform, leading to inefficiencies in eVoucher management.

Our Approach: We introduced a digital eVoucher system within the driver portal, allowing drivers to receive and manage eVouchers automatically. Once the data is fetched from Autofleet, it is displayed as an eVoucher on the driver's dashboard.

Benefits and Results: The eVoucher functionality streamlined the drivers' feedback process, reducing administrative overhead and minimizing errors. It also provided enhanced tracking and reporting capabilities, fostering greater accountability.

eVoucher Reminder functionality

Drivers often forgot to address their vouchers on time, leading to delays in decision-making and payments.

Our Approach: We implemented an automated reminder system using a .NET console application and Windows Scheduler to send notifications via email and SMS to drivers about unaddressed eVouchers.

Benefits and Results: The eVoucher reminder system improved voucher utilization and reduced the occurrence of expired vouchers, resulting in a more efficient process for both drivers and the client.

Automated Invoice generator

The manual invoicing process was time-consuming and prone to errors, leading to delays in payment processing.

Our Approach: We developed an automated invoice generation system that calculates charges based on ride data, including distance, time, driver feedback, and additional fees. The system generates invoices in real time, which can be downloaded as an Excel file.

Benefits and Results: The automated invoice generator minimized manual invoicing time, ensured billing accuracy, and expedited the payment process. This led to faster payments, fewer billing discrepancies, improved cash flow, and greater customer satisfaction.

Conclusion:

By implementing a suite of automated systems across various operational areas, we significantly enhanced the efficiency, accuracy, and overall quality of the transportation service. From request processing and driver coordination to communication and financial management, our solutions streamlined workflows, reduced human error, and improved customer experiences. These changes not only boosted operational efficiency but also fostered better relationships with parents, CMS, and drivers, leading to a more reliable and seamless service.

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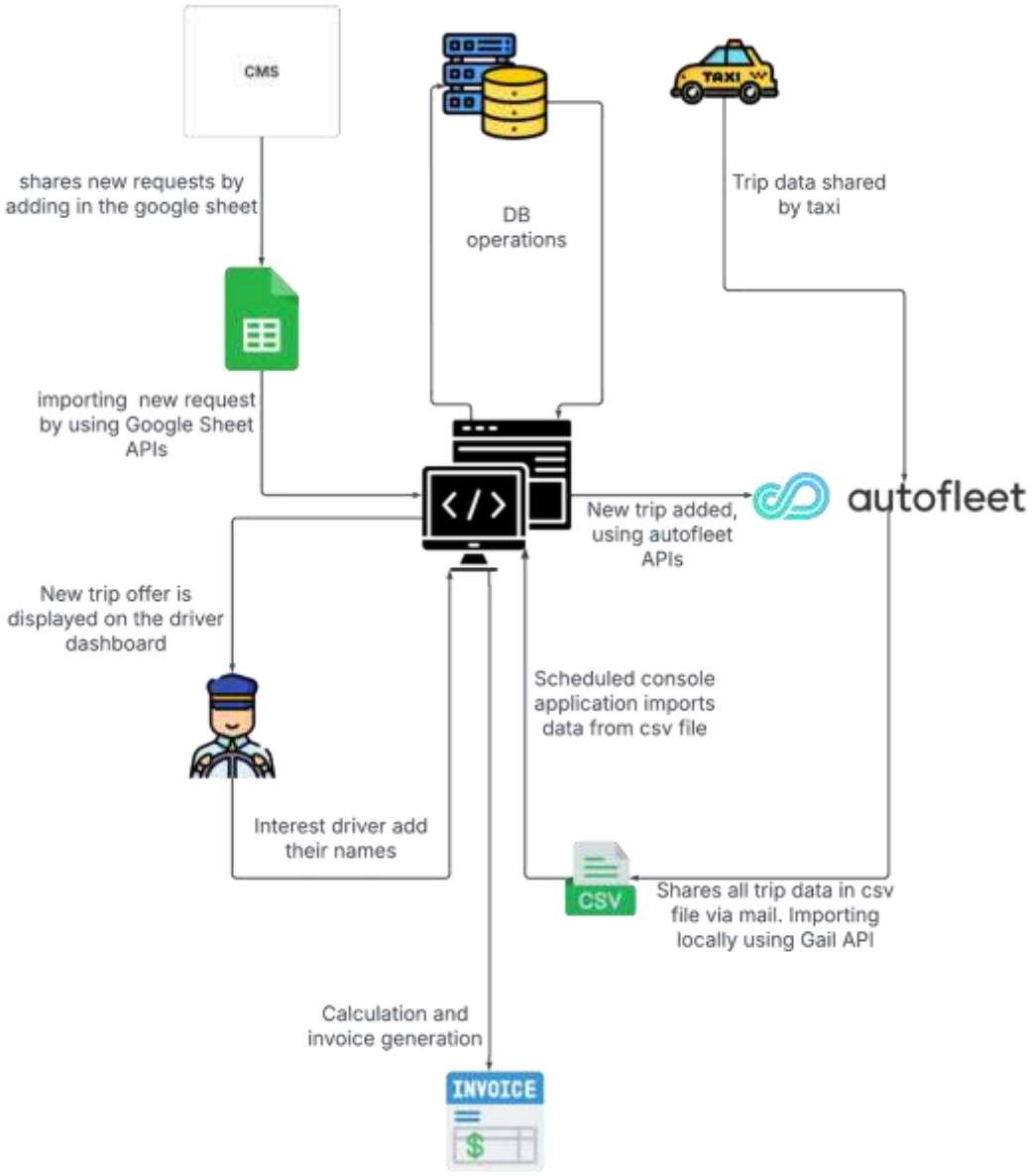
Data flow chart:



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Screenshots:

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