

Smart Vehicle Booking System



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About De Heus: for more information, please visit www.deheus.com

De Heus Animal Nutrition is an international producer of a complete range of compound feed, premixes, concentrates and feed specialties. Our customers are independent farmers, integrations and dealers. We provide nutritional concepts that ensure maximum animal health and optimal performance. Enabling our customers to feed their poultry, pigs, ruminants and aquaculture every single day. We invest throughout the supply chain to support the development of the agricultural sector.



Project Description

The Smart Vehicle Booking System is a centralized platform developed for De Heus Vietnam to manage internal business trip bookings efficiently. It replaces manual coordination (emails, spreadsheets, phone calls) with an automated, role-based system that streamlines trip requests, vehicle assignments, route planning, and reporting. The system supports requesters, coordinators, drivers, and administrators, and is fully integrated with Microsoft Azure and Google Maps API.

Background & Motivation

De Heus Vietnam manages over 30 sites and relies heavily on manual processes for business trip coordination. These outdated workflows have led to scheduling conflicts, underutilized vehicles, and a high administrative burden. The project was initiated to digitize and optimize this process—minimizing delays, increasing visibility, and improving overall operational efficiency for both staff and management.

Objectives



Digital Transformation

Replace manual, email-based processes with a centralized digital platform.

Real-Time Visibility

Track trip status, driver actions, and booking updates across roles.



Automated Assignment

Automatically assign vehicles and drivers based on availability and business rules.

Secure Access Control

Ensure only authorized users can access role-specific features.



Operational Efficiency

Minimize administrative workload and reduce scheduling errors.

Scalable Design

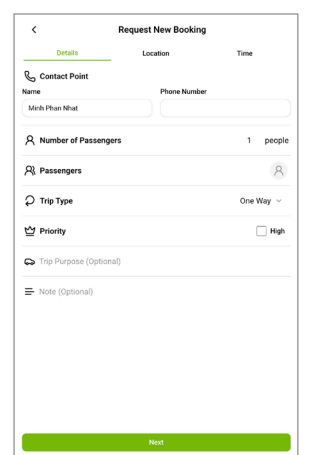
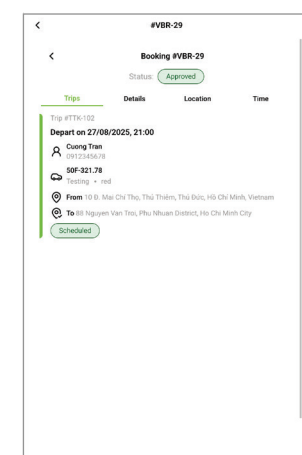
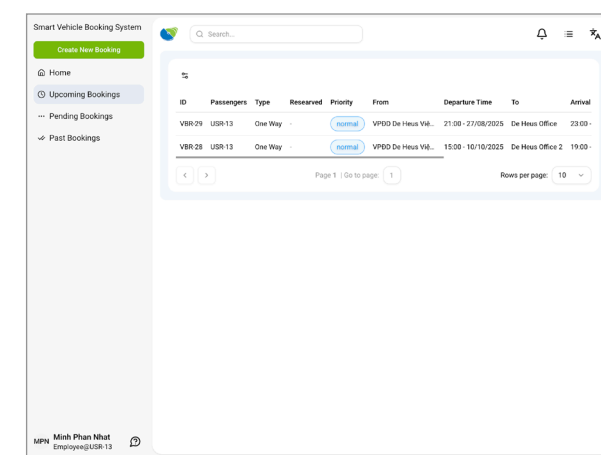
Build a system architecture capable of handling large volumes and future expansions.



Key Features

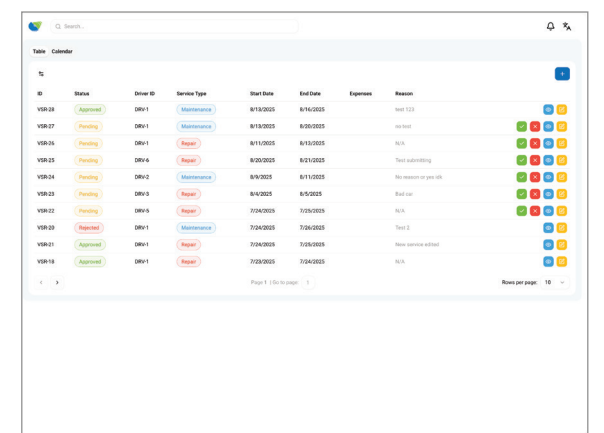
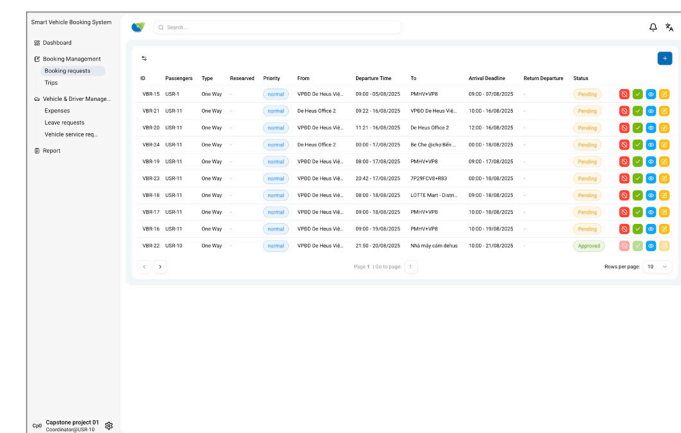
Requester

Simple booking request form | Real-time request tracking



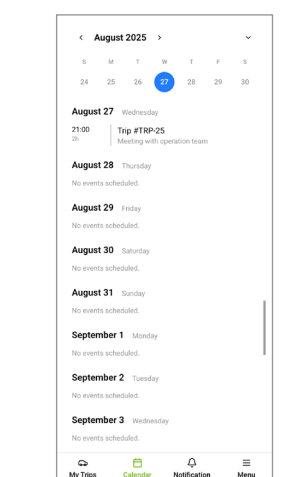
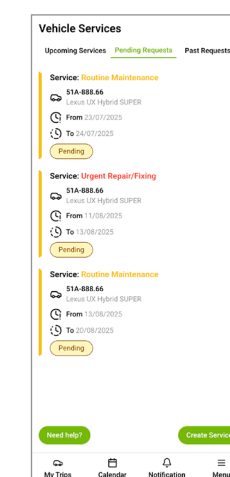
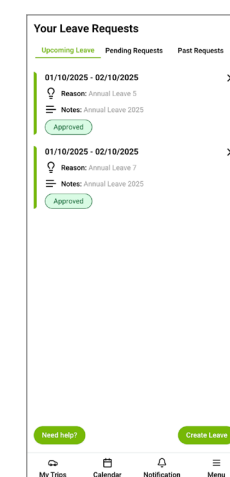
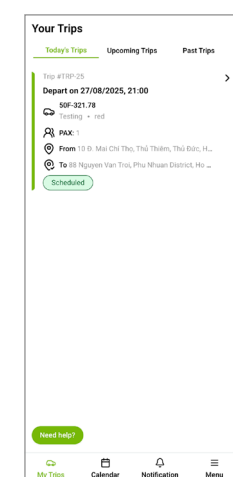
Coordinator

Centralized trip overview | Manage driver leave & vehicle service schedules | Assign drivers and vehicles with ease



Driver

Upcoming jobs notification | Mobile trip-day operations | Requester leave schedule & vehicle service



Admin

Manage system data, users, roles & permissions, vehicles, locations, etc.

Automatic Vehicle Assignment

Automatically arrange vehicles for booking requests to optimize vehicle utilization.

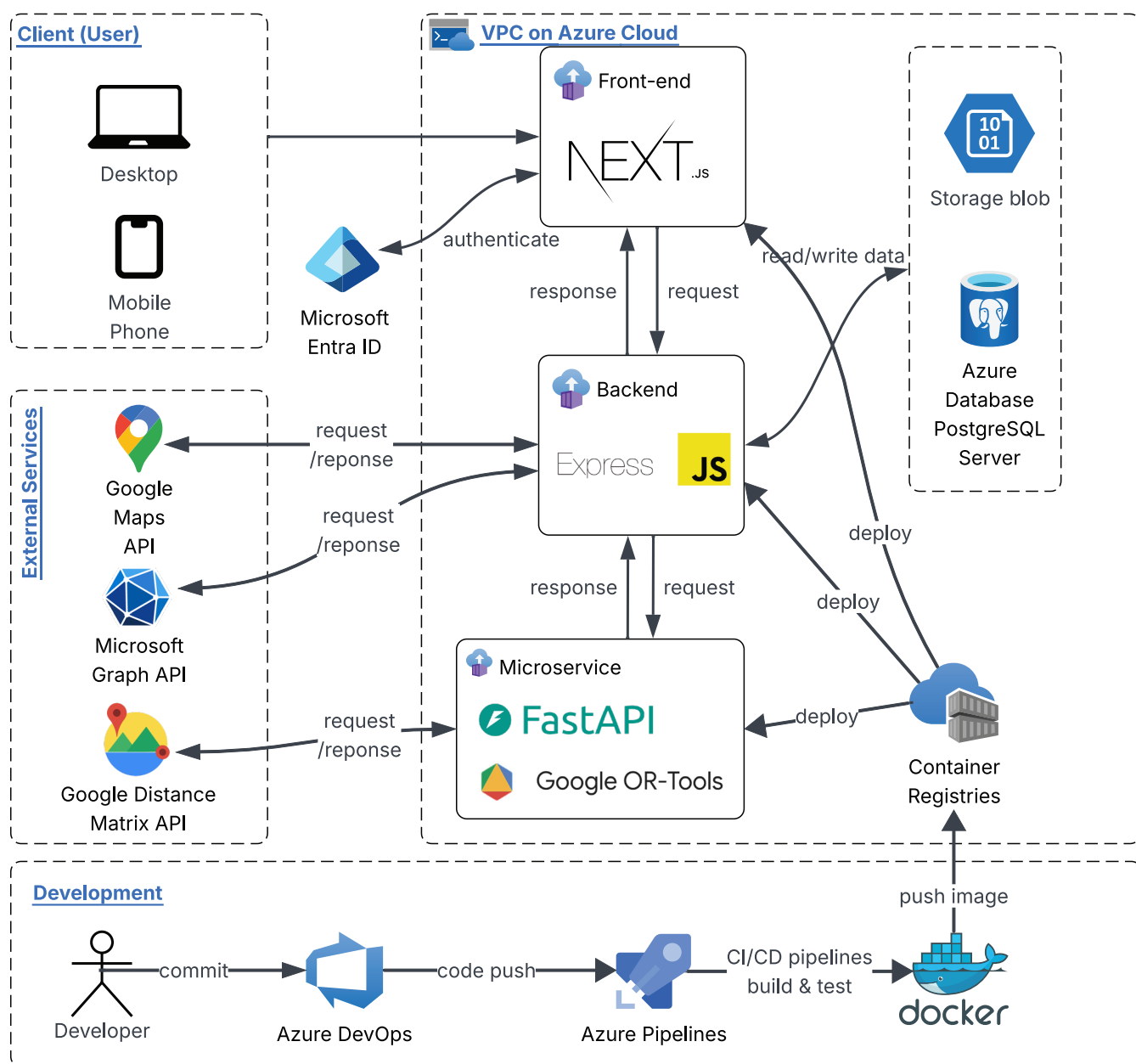
Reporting & Analytics

Visual dashboards for trip history and usage | Data-driven insights for decision-making

Security & Integration

Secure login with Microsoft Entra ID | Seamless integration with internal De Heus systems

System Architecture



Future Work & Scalability



Performance & Scalability

Optimize the system to handle high volumes of booking requests and vehicle data for enterprise-wide deployment.



Globalization Support

Standardize data formats and introduce multi-language capabilities to enable adoption across different branches and regions.



In-house Trip Optimizer

Develop a custom dispatch algorithm to replace the current third-party dependency, improving flexibility, security, and long-term sustainability.



Enhanced User Experience

Refine the interface and workflows to ensure smooth usage for all roles, including non-technical users, while supporting mobile and desktop platforms.

Acknowledgement

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