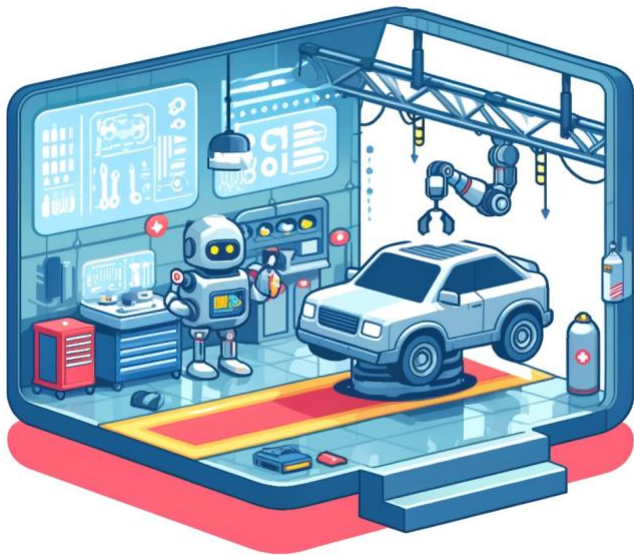




TRANSFORMING AUTOMOTIVE SERVICE: THE CAPSULE REPAIR SHOP MODEL

ABSTRACT

This proposal presents a novel automotive service model blending a physical outlet with a web-based operating system (OS), enhancing efficiency, transparency, and customer engagement through data-driven quality controls and AI-assisted operations.

Stephen Wang

76 Pro Lube Plus

info@76prolubeplus.com



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1. Executive Summary

We are seeking \$2 million in funding for the **Capsule Repair Shop** initiative, hereafter referred to as **Capsule Shop** or **Shop**. This venture represents a novel approach in the automotive repair and maintenance industry, leveraging a first-principles methodology. Our aim is to establish a hybrid business model that combines a physical storefront with its customized operating system (**OS**, or **Shop OS**), providing comprehensive services and scalability to bring this innovative concept to life.

At the core of Capsule Repair Shop's philosophy is a dual focus on the vehicle and its owner, striving to deliver transparent, high-quality, and personalized automotive services. This approach aligns with the evolving consumer perception of vehicles as personal devices¹, particularly in the era of electric vehicles (EVs). The increasing prevalence of EVs, characterized by their advanced technology, has reshaped both vehicle manufacturing and maintenance, thereby expanding the demand for proficient EV service providers.

In response to this industry evolution, Capsule Shop is poised to seize a significant market opportunity. Our strategy encompasses enhancing operational efficiency through comprehensive system integration and software optimization, ensuring service excellence via a data-driven quality control framework, and elevating the customer experience. With a projected timeline of 5-10 years, there is a decent probability that Capsule Shop can capture a substantial market share in the automotive repair sector.

1.1. How We Plan to Achieve Our Goals

Enhancing efficiency is crucial to our success. By improving the operational efficiency of the Shop, we not only reduce costs for our customers but also enhance the quality of our automotive repair and servicing. Our primary strategy employs a workflow-based modularization methodology, which systematically breaks down business operations into automatable components.

¹ The more advanced vehicles are often defined as SDVs (Software Defined Vehicles).

Furthermore, achieving cost-effectiveness and heightened efficiency will be realized through comprehensive system integration. Shop OS merges various business functions, eliminating the need for external software solutions like *Mitchell*², *MyShopManager*, *Shop Money*, etc., and avoiding additional expenses on subscriptions for employee time and shift management systems. Detailed information on this approach is available in the "[Proposed Solutions](#)" section.

1.2. Why Choose Capsule Shop?

Capsule Shop transcends the conventional definition of a software or web application; it embodies a synergistic blend of digital and physical realms. Our plan includes establishing a tangible storefront to directly engage with customers, enabling us to refine our software—the "brain" of Capsule Shop—through hands-on experience and iterative learning.

This integrated hardware-software approach not only sets us apart from traditional repair shops in efficiency and cost-effectiveness but also offers a distinctive advantage over competitors like *Shop Money* or *Mitchell*¹. Our platform's independence from PC operating systems and its accessibility from anywhere online, contrast sharply with competitors' reliance on local, PC-based Microsoft SQL servers. Our Azure-hosted data center lays the groundwork for even more cost-effective operations in the future.

By consolidating critical business operations into a singular, containerized OS, Capsule Shop aims to:

- 1) Significantly boost operational efficiency, fostering continuous, agile improvement via business modularizations.
- 2) Enhance service quality consistency and data reliability, accuracy, and integrity.
- 3) Provide a 24/7 online service platform, offering customizable, automated services related to vehicle, repair, and payment information, thereby adding significant value for our customers.

² <https://mitchell1.com>. A Snap-on company.

Our model defines each business component in distinct yet interconnected modules, enhancing our service with the integration of AI-driven diagnostics for more accurate and informed assessments.

Capsule Shop is poised to become the definitive "one-stop" destination for all automotive maintenance and service needs. Our focus on data-driven strategies for quality control, workforce management, and customer experience improvement positions us uniquely in the market. By targeting areas where large dealerships falter, we aim to carve out a niche market. Establishing trust through transparent, efficient, and professional service, our scalable Capsule model is designed for growth and expansion, offering a compelling proposition in a rapidly evolving industry landscape.

1.3. Prototype

We have successfully developed a functional online prototype that embodies many of the functionalities. To explore this prototype, please visit <https://new76prolubepius.com/automan-shop/>. Access details for a test user, which allow for a comprehensive feature evaluation from an employee's perspective, are available in the [Appendix E](#).

Furthermore, we leverage the homepage at <https://new76prolubepius.com> to drive site traffic, thereby expanding our online customer base and enhancing our revenue streams. This dual approach of prototype demonstration and traffic generation serves as a foundational step in our broader strategy to establish and grow Capsule Shop's online presence and market influence.

2. Problem Statements

The automotive repair industry is traditionally perceived as labor-intensive, high-risk, and low reward. Independent automotive service shops generally operate on thin margins, while big-name dealerships preserve their profitability through a monopolistic status. This disparity creates a disincentive for dealerships to invest in innovative engineering solutions that could reduce maintenance costs and enhance efficiency.

Independent repair shops often depend on dealerships for original equipment manufacturer (OEM) parts and software updates. For example, the cost to reset the electronic control system (ECM) in a Dodge vehicle can range between \$200 and \$500—a service exclusively performed at dealerships. This monopoly was even more pronounced before the widespread adoption of electric vehicles (EVs), creating significant bottlenecks in the industry, characterized by:

- 1) A lack of transparency in service and pricing.
- 2) Little motivation to innovate or enhance customer experiences.
- 3) Overpriced parts and services.

2.1. Cry Out for Transparency

Customers frequently lack clear information on the services performed on their vehicles, relying solely on the mechanic's or shop's assurances. This opacity facilitates the potential for substandard repairs, a common grievance among consumers. The market's failure to address these concerns indicates a demand for a repair service that excels in:

- 1) Accurately diagnosing issues and maintaining transparent pricing.
- 2) Providing consistent quality in repair and servicing across various vehicle brands.

2.2. Examples of Lack of Motivation to Innovate

Consider the Nissan Leaf (EV), launched in 2011, which lacked a battery cooling system. Exposing the Leaf to sunlight could lead to battery pack overheating, causing irreversible damage. Nissan charged \$6,000 for a single pack replacement, and a vehicle typically contains three packs. In contrast, the 2012 Tesla Model S featured a liquid cooling system for its 60-100 kWh batteries. Presently, all new Tesla models come with an "Octo-valve" system, which is five times more efficient than its predecessors.

2.3. Overpricing Parts & Service

Previously, tasks like upgrading a vehicle's Electronic Controller Module (ECM) required a dealership visit, with Over the Air (OTA) updates rare before the EV era. This monopoly diminishes the incentive for dealerships to adopt new technologies that could improve customer service. Additionally, dealerships often enjoy a 200-300% profit margin on parts, particularly for European auto brands, underscoring the need for a transformative approach in the industry.

2.4. Challenges for Chain and Independent Repair Shops

Chain facilities and independent repair shops grapple with low profit margins due to rising overheads and the inherent risks of the automotive repair industry:

- 1) Independent shops depend on third-party software like Mitchell1¹), incurring hefty expenses on diagnostic software (e.g., Direct-Hit³) and scanning tools (e.g., Snap-on Zeus) and CRM software (e.g., Salesforce, SocialCRM).
- 2) The quality of repair services is a constant concern. Minor errors can lead to significant damages and liabilities. For example, a slightly loose drain plug might cause minor oil leaks or lead to catastrophic engine failures.
- 3) Larger chains leverage competitive advantages by mitigating some of these issues:
 - a. Valvoline Instant Oil Change minimizes costs by using its products and eschewing complex repair services, thereby reducing liability risks. They have also developed proprietary software for quality control in their oil change processes and standardized work procedures.
 - b. Firestone, a franchise-based operation, relies on service outlets that pay franchise fees⁴ for access to business systems and support, similar to independent shops but with added resources and brand recognition.

2.5. Adapting to EV Transition

The electric vehicle (EV) industry encountered a slowdown in 2024. Despite uncertainties about the pace of broader electrification, it's evident that gasoline, hybrid, and electric vehicles will coexist for the forthcoming decades. This coexistence introduces complex challenges for repair facilities, which must now adeptly and safely service a diverse range of vehicle technologies, including EVs, hybrid EVs, and traditional gasoline vehicles. The integration of advanced technologies in recent models, such as touchscreen interfaces,

³ <https://www.identifix.com/direct-hit/>

⁴ Firestone franchise fee ranges from 20,000 to 40,000 USD. <https://www.efinancialmodels.com/how-much-does-a-firestone-franchise-cost-a-comprehensive-guide/>

sophisticated sensors, and complex Electronic Control Module (ECM) systems, presents a steep learning curve for the current workforce.

In light of these developments, Capsule Shop is positioned to seize a significant market opportunity by directly addressing these challenges. Our approach, detailed in Steps 2 and 3 of the [Development Timeline and Future Plans](#) section, outlines our strategy to become a forward-thinking automotive service provider adept at servicing both gasoline and electric vehicles, aligning with the industry's evolving needs.

3. Proposed Solutions

To elevate Capsule Shop's success, it's crucial to address the core challenges it faces: slim margins and a competitive disadvantage as an independent repair shop. Independent establishments often lack the pricing leverage of larger dealerships or well-known brands. By enhancing the efficiency and quality of services—embodied in the principles of "Fix fast" and "Fix well"—we can improve profitability and customer satisfaction.

3.1. “Fix Well” and “Fix Fast”

Elevating operating efficiency across all business facets is essential to boosting profit margins while upholding service excellence. To achieve these goals, we continuously evaluate our processes through questions like:

- 1) How can we ensure that customer concerns are captured accurately?
- 2) How can we facilitate smooth handovers between service advisors and technicians?
- 3) How do we guarantee that all tasks within a repair order are completed to standard, double-checked, and confirmed by technicians?
- 4) How can we ensure that comments and insights from technicians are systematically recorded?

However, asking these questions isn't enough. We need structured, systematic solutions to enhance efficiency. This involves deconstructing business operations into discrete, manageable components, each representing a step in a business function, thus allowing a major function to be seen as a sequence of interconnected components.

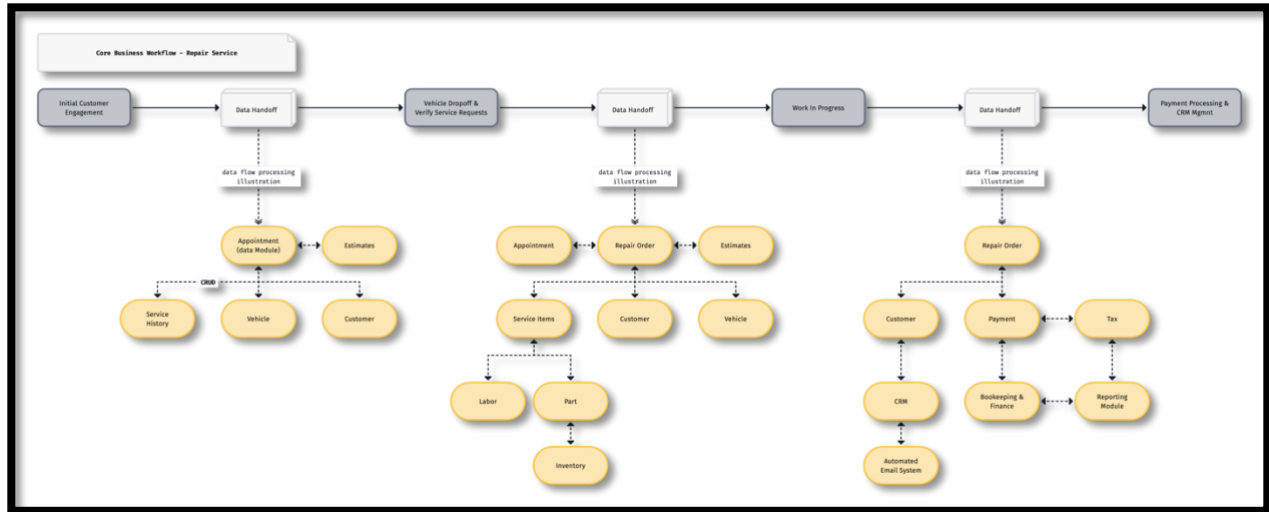


Figure 1: Repair Workflow

For instance, Figure 1 outlines the workflow of our core business function: repair service. This process is segmented into four components: "Initial Customer Engagement," "Vehicle Dropoff & Verify Service Requests," "Work in Progress," and "Payment Processing & CRM." Drawing parallels to the Continuous Integration/Continuous Deployment (CI/CD) approach in software development, we aim to refine each component's efficiency through iterative improvements. In the "Initial Customer Engagement" phase, we've implemented an online appointment system, enabling us to familiarize ourselves with new customers before service initiation. The next phase involves introducing an AI-based model to manage appointments, capable of processing requests online and via text messages⁵, further streamlining customer interactions and operational efficiency.

3.2. Automation-based Corporate Control

Our integrated operating system provides comprehensive solutions for corporate operations and control, streamlining various processes to enhance efficiency and accuracy:

- 1) Employee Onboarding and Management System
- 2) Integrated Time Clock and Payroll System
- 3) Automated General Ledger Entry and Balance System

⁵ Like AAA service's using AI to create a tow/unlock service request on its app.

- 4) Event-Driven Automated Employee Performance Tracking System
- 5) Service Technician and Service Advisor Checklist System
- 6) API-Data-Driven and AI-Assisted Smart Diagnosis System

Through deep integration and improved data flow control, Capsule Shop can achieve the synergy required for faster and more precise business operations. Further details can be found in [Appendix D](#).

3.3. Hardware + Software Approach

A successful automotive repair shop requires more than an effective operating system; it also needs a physical presence to test and refine the system. At Capsule Shop, we believe in a dual approach: operating a physical service outlet while iteratively enhancing our software. This hands-on experience allows us to continuously improve our operating system, aligning with the specific needs and feedback of our customers.

Over a five-year period, Capsule Shop aims to amass significant expertise in operational automation and the technical aspects of automotive repair, turning this knowledge into a valuable asset for future scalability.

3.4. Computer Vision-Based Robotic Automation (Long-Term Vision)

With California's minimum wage rising to \$16 per hour and fast-food workers earning \$20 per hour as of April 1, 2024, labor costs are exerting financial pressure on smaller businesses, including independent automotive repair shops. Looking ahead 5-10 years, we envision developing a robotic technician prototype capable of performing basic automotive services such as oil changes. This initiative reflects our commitment to innovation, aiming to mitigate rising labor costs while enhancing service efficiency and reliability.

4. Competitive Analysis

Our goal is to establish a self-sustaining, efficient, and scalable full-service automotive repair facility. Our model is designed to be directly profitable from vehicle and repair services, setting us apart from typical franchise operations.

4.1. Minimized Operating System Costs

A key advantage for Capsule Shop is our low overhead related to third-party software management. Unlike many competitors who rely heavily on external customer relationship management (CRM) systems like Salesforce, automated email marketing tools, and others, we keep our operations lean and integrated within our own system, reducing costs and increasing efficiency.

4.2. Data-Driven Quality Control

We deconstruct the operation of a repair shop into smaller, more manageable components, each with defined inputs and expected outputs. This modularity allows for efficient "data handoff"⁶ between components, facilitating seamless progression from one task to the next. Such granularity enables continuous, agile improvement and automation of each process, enhancing overall quality control. For instance:

- 1) In "Initial Customer Engagement," we implement a real-time phone number parsing function to prevent the entry of duplicate phone numbers.
- 2) During the "Work in Progress" phase, if a final bill exceeds the initial estimate, our system automatically notifies the advisor and technician and mandates customer approval before proceeding with further repairs.

4.3. Online and Mobile Accessibility

Capsule Shop's online and forthcoming mobile app⁷ presence provides a significant competitive edge. This digital accessibility allows customers to reach us and utilize our services conveniently, setting us apart from traditional repair shops and dealerships.

4.4. Workflow-based Solutions

Our operational knowledge is encapsulated into workflows. We leverage workflow management to define, execute, and automate our business processes. Within Capsule Shop, each component represents a manageable aspect of our business that we can enhance and automate through ongoing development cycles. This approach facilitates

⁶ A data handoff is to verify if the desired outcome is met and control the data flow from one component to other.

⁷ We are working on a front-end iOS app that will launch in 2024.

continuous improvement in a CI/CD (Continuous Integration/Continuous Deployment) manner, ensuring our business remains dynamic and responsive to change.

5. Customer Acquisitions & Retention

5.1. Customer Acquisitions

Capsule Shop relies on the following channels to reach out to more customers.

- 1) **Utilizing Existing Customer Data:** We possess a database of 28,000 contacts and 3,000 email addresses from our previous automotive repair business endeavors. This valuable data serves as a foundation for re-engaging with former customers.
- 2) **Online Engagement:** Our digital offerings include unique value-added services like the Vin Report, Virtual Technician for answering automotive queries, and an online appointment booking system. We encourage online engagement by enabling customers to create accounts and access enhanced features, aiming to develop a suite of premium digital services that attract customers round-the-clock.
- 3) **Mobile App Engagement:** Recognizing the importance of mobile accessibility, we're developing a mobile app to package our online services conveniently. This approach aims to broaden our reach and attract more potential customers, supporting our core business growth.

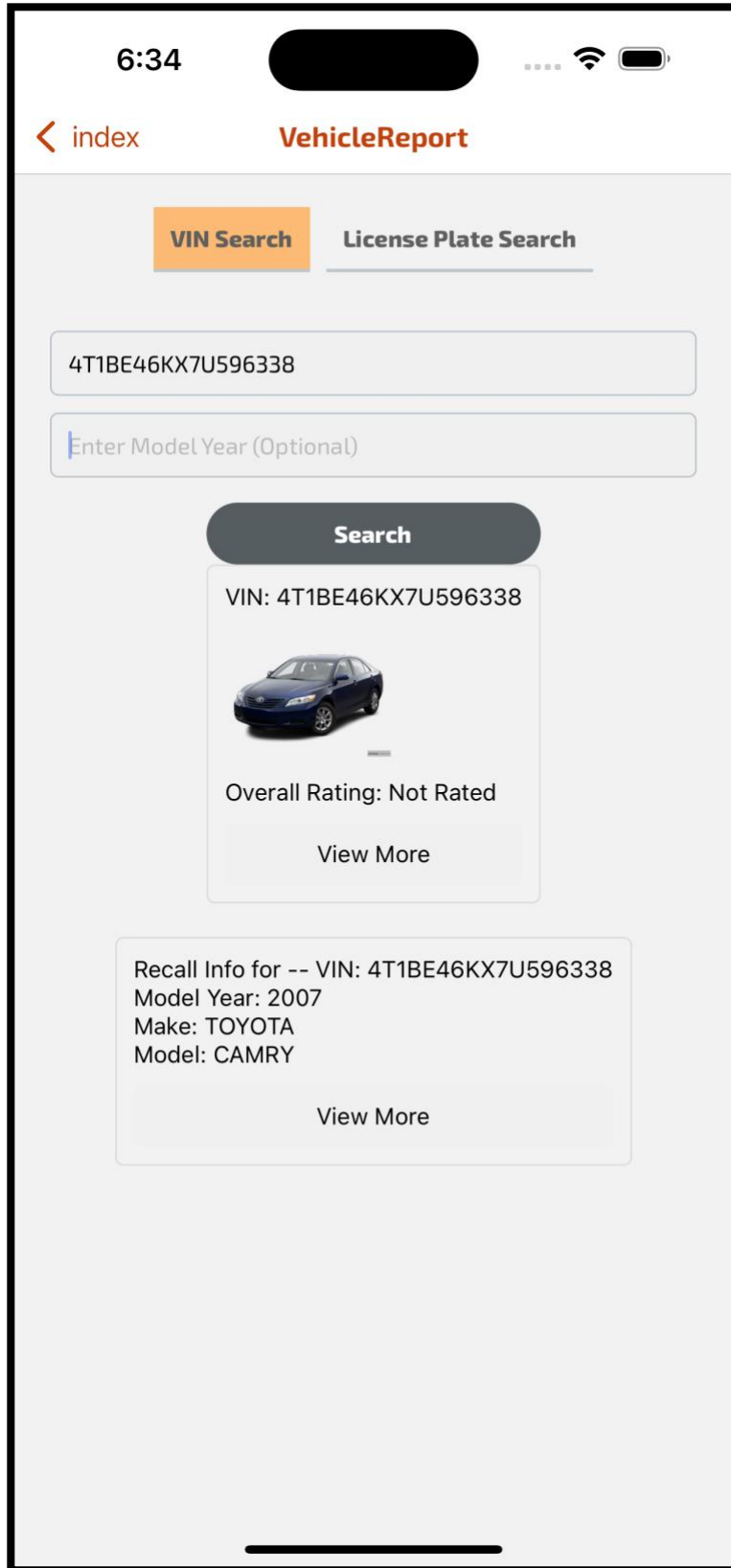


Figure 2: Vin report service in iOS app.

- 4) Organic Growth through Core Business: With the physical shop operational, we plan to leverage advertising platforms like Facebook Ads, Yelp Ads, and Google Business Ads coupled with other marketing strategies to enhance local community awareness and drive organic customer growth.

5.2. Retention Strategy

Trust-building, the provision of value-added services, and operational cost reductions through automation are pillars of our customer retention approach. While promotional pricing and discounts can boost demand in the short term, our enduring strategy focuses on enhancing service quality and efficiency and bringing convenience to customers. By continuously improving our offerings and reducing costs without compromising quality, we aim to foster long-term customer loyalty and satisfaction.

6. Income Sources and Financial Projections

We expect the shop to realize incomes from the following sources:

6.1. Core Business Income

The primary revenue stream for Capsule Shop stems from our comprehensive repair and maintenance services for customer vehicles. In our financial projections (detailed in Appendix C), we anticipate generating gross revenue between \$450K and \$580K in the first two years, targeting a gross margin of 5-10%. Our goal is to reach or exceed \$1 million in revenue by the third year, marking a significant milestone for the business.

6.2. Additional Business Income

Beyond our core services, Capsule Shop is poised to introduce several value-added online services, which are expected to create additional revenue streams:

- 1) **Vin Report:** We plan to provide digital copies of detailed vehicle information based on the VIN, sourcing rich data from our vendors. This report will include comprehensive details like manufacturer information, specifications, safety recall records, and safety ratings.
- 2) **Membership Subscriptions:** We aim to offer exclusive services to our subscribers, such as access to an AI technician for vehicle-related inquiries, comprehensive repair records with inspection images and detailed service history, and premium services like gated overnight vehicle pickup and drop-off.
- 3) **Vehicle Rental:** Recognizing the potential demand, we're considering vehicle rental services as an auxiliary income source, particularly for customers needing transportation while their vehicles undergo multi-day repairs. Additionally, exploring the possibility of a "Robotaxi" service could further diversify our income streams and cater to evolving customer needs.

6.3. Financial Projections with Conservative and Optimistic Views

For our 5-year investment horizon, Capsule Shop aims to maintain a stable team while striving to achieve the significant milestone of \$1 million in revenue by the third year.

The planned team composition will include two full-time mechanics, one full-time software developer, and one to two engineering interns, alongside my leadership. In our financial illustrations, **blue** figures represent assumptions or projections, while **black** figures indicate calculated values.

Capsule Repair Shop					
By Yin "Stephen" Wang					
III. Projected Cash Flow with Conservative estimates					
Assumptions					
1. Assume 8-5 work schedule and 6 days a week. Assume 50 weeks x 6 days as week = 300 days that are open for business.					
2. The average sale per invoice for 76 Pro Lube Plus was \$110~\$150; the industry average invoice dollars is well over \$400.					
4. Targeted average invoice dollars					
	low	high			
	150	200			
5. Total working days per year					
	300	300			
6. In first year we will spend \$720K while the rest of years will incur variable expenses per year, which is \$290K.					
TIMELINE	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Cash at the beginning of the year	\$ 1,200,000	502,500	265,300	104,900	57,900
average repair order per day	10	11	20	30	40
average repair order sale	150	160	180	180	180
average daily revenue	1,500	1,760	3,600	5,400	7,200
Gross Revenue	450,000	528,000	1,080,000	1,620,000	2,160,000
Targeted Gross Margin (estimated conservatively)	5.0%	10.0%	12.0%	15.0%	20.0%
Gross Profit	22,500	52,800	129,600	243,000	432,000
Spending through the year	(720,000)	(290,000)	(290,000)	(290,000)	(290,000)
Cash at the end of the year	\$ 502,500	\$ 265,300	\$ 104,900	\$ 57,900	\$ 199,900

Page 2 of 4

Figure 3: Displays our conservative cash flow projections.

During these initial years, our focus will be on operating our physical service outlet and refining the Shop OS. Starting in Year 3, we expect to see substantial revenue growth. This phased approach ensures a solid foundation and strategic expansion in line with our business objectives.

Our conservative estimate suggests that the company is expected to achieve positive cash flow in Years 4 and 5. Under these projections, the company's valuation is anticipated to increase from \$1.2 million to \$2.1 million, yielding a Return on Equity (ROE) of 12%.

In our optimistic scenario, we foresee the company valuation reaching \$3.3 million with an ROE of 22%. Our financial planning adopts a cautious approach, particularly in estimating margins and gross revenue. For a comprehensive view of our financial projections, please consult [Appendix C](#), which provides detailed financial documents and further insights into our fiscal strategies and expectations.

Capsule Repair Shop

By Yin "Stephen" Wang

V. Estimated Value of the Business

1. Frequently used Sale Multiples is 1-3 times (X).

2. Sales Multiples to apply here is

		conservative	optimistic
Value at the beginning of year 1	\$	1,200,000	\$ 1,200,000
Revenue at the end of year 5	\$	2,160,000	\$ 3,300,000
Value at the end of year 5		2,160,000	3,300,000
ROE		12%	22%

Page 4 of 4

Figure 4: Estimated Return on Equity in 5 Years - Sales Multiples Method

7. Development Timeline and Future Plans

7.1. Pre-launch Period

Following approval of this proposal, we anticipate a 6-month pre-launch phase. This crucial period will be dedicated to comprehensive unit testing and locating an optimal facility within the greater Austin, Texas area.

7.2. The Outlook of Automotive Service

The shift towards electric mobility, coupled with the rapid technological advancements in automotive design and functionality, signals a forthcoming shift in market dynamics. Within the next 5-10 years, traditional dealerships are likely to see a diminishing hold on the market as the landscape undergoes a dramatic transformation. This impending revolution is expected to create a vacuum, presenting a golden opportunity for new entrants and a redefinition of market hierarchies.

7.3. Master Plan

- 1) Phase I: Establish a fully operational and profitable Capsule Shop model. This initial phase is focused on proving the viability of our business model, ensuring it is robust, efficient, and customer friendly.
- 2) Phase II: Begin in-house production of auto parts and introduce robotic repair and maintenance processes. This phase aims to reduce costs and increase efficiency by manufacturing our own parts—a step that requires significant knowledge accumulation and experimentation. Additionally, we plan to explore the integration of production-grade robots to undertake routine tasks like oil changes.
- 3) Phase III: Expand our scope of auto part manufacturing and enhance our range of vehicle-based value-added services, both online and on-site. At this juncture, Capsule Shop is envisioned to evolve into an automation-centric engineering entity, renowned for its repair quality, consistency, and a cohesive ecosystem that fosters customer loyalty and makes the switch to competitors less appealing.

Appendix A: Web application Architecture (V1.0)

The Capsule Repair OS is a comprehensive, monolithic web-based system crafted for rapid scalability once the initial service shop demonstrates profitability.

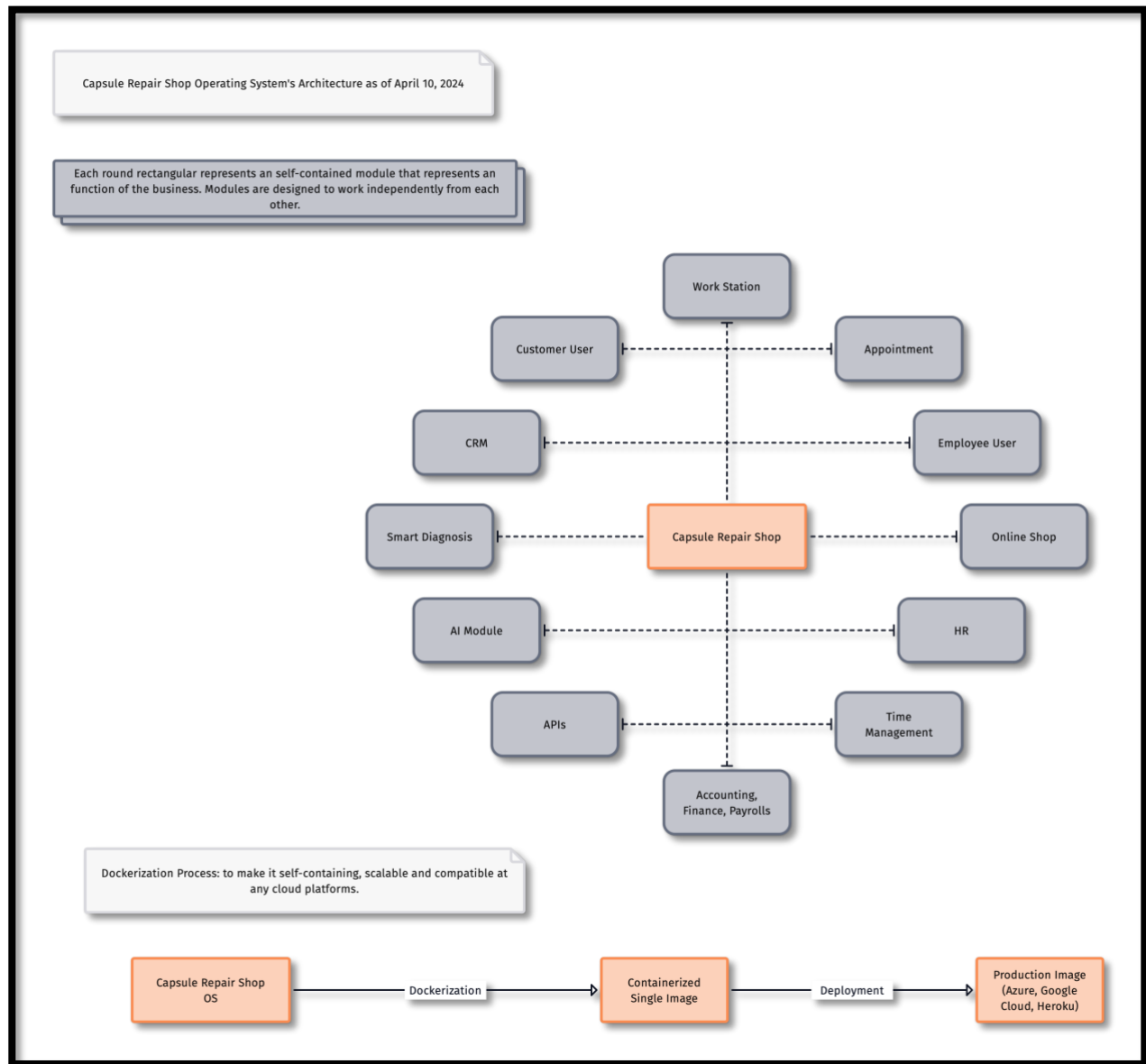


Figure 5: Depicts the architecture of the Capsule Repair Shop OS

The Capsule Repair Shop OS encompasses several integral modules:

- 1) **API Module:** Oversees external API integrations and internal API services, including rate-limiting features.

- 2) **Appointment** Module: Handles online appointment scheduling and management.
- 3) **Customer User** Module: Manages customer profiles and user data.
- 4) **Employee User** Module: Administers employee user information.
- 5) **CRM** Module: A comprehensive application that maintains and updates customer information, acting as a conduit between our customer database and future user interactions.
- 6) **Centralized Utility** Module: Provides a suite of company-wide utility functions, supporting both scheduled and ad-hoc tasks applicable across the entire application.
- 7) **HR** Module: Manages employee records, promotional activities, disciplinary actions, and training programs, distinct from the Employee User Management Module.
- 8) **Work Station** Module: Serves as the primary interface for employees, offering role-specific dashboards for service advisors, technicians, accounting teams, etc., with a focus on service advisors and technicians.
- 9) **AI** Module: Utilizes both existing and proprietary in-house AI models to enhance company-wide tasks, such as voice-based customer interactions, enhancing overall user experience.
- 10) **Accounting, Finance & Payroll** Module. Manages financial aspects including general and sub-ledger accounts, account payables, revenues, inventory management, and related financial operations.
- 11) **Online Shop** Module: Oversees online product listings and payment processes, integrating Stripe SDK as the primary payment platform.
- 12) (future) **Logging** Module: Responsible for comprehensive logging across the application, such as tracking vehicle ownership changes.
- 13) (future) **3D modeling** Module: Planned for rendering 3D models of automotive parts and components.
- 14) (future) **Vehicle Rental** Module: Intended to manage a supplementary service for customers requiring rentals while their vehicles undergo repairs.

This architecture lays the foundation for a robust, efficient, and scalable operating system, supporting Capsule Repair Shop's mission to innovate the automotive repair industry.

Appendix B: Capsule Repair Shop’s Workflow Charts

In Appendix B, we delve into the Capsule Repair Shop's workflow charts, which are instrumental in breaking down business operations into smaller, automatable components. These workflows are the backbone of our system's architecture, guiding the design and enhancement of the Capsule Shop's operating system.

The Capsule Repair Shop system is designed as a self-sufficient, monolithic entity comprising various modules, each embodying a cluster of related business functions, tasks, and data processes. The interaction between these modules is pivotal, with workflow charts providing a visual representation of these interactions, underscoring their importance in our automation strategy.

1. Detailed Business Workflow

A comprehensive, detailed workflow that captures steps, interactions and conditions between customers, shops’ service technicians and service advisors.

Double click on the image below or [link](#) here to open the linked document in PDF.

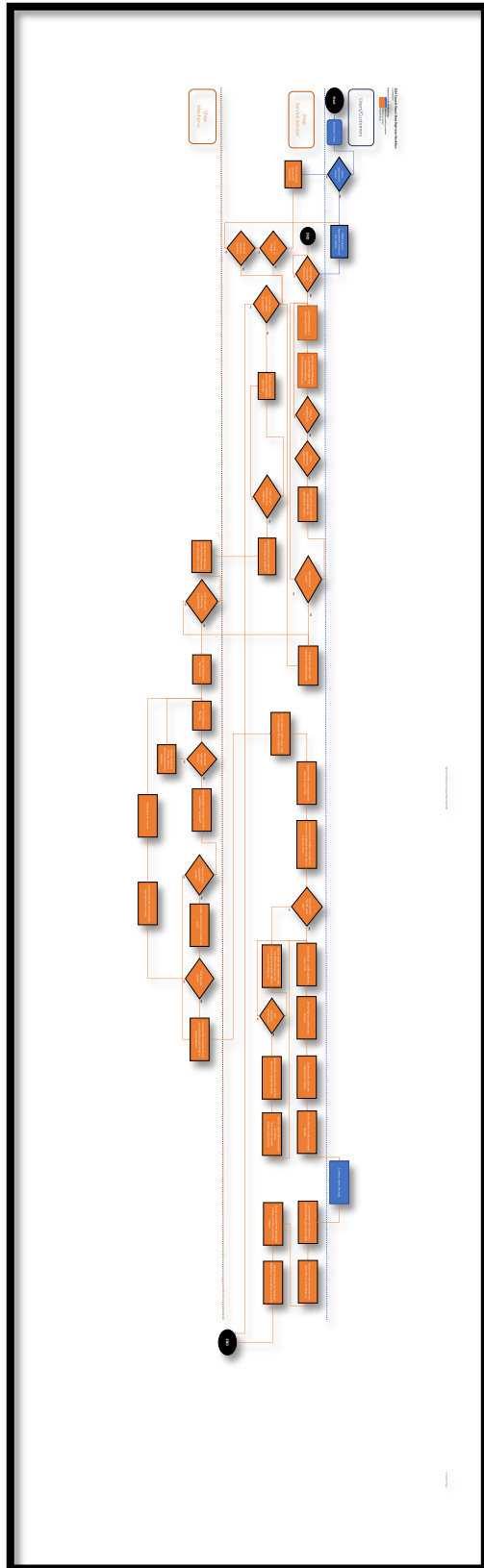


Figure 6: Presents a high-level conceptual workflow for Capsule Shop

2. Core Business Workflow – Repair

In Figure 7, each darker greyed rectangular node represents a specific component within the workflow, functioning as a distinct step in the process. For instance, "Work in Progress" signifies the phase where active repair tasks are executed, while "Initial Customer Engagement" denotes the initial interactions with customers.

The yellow objects within the workflow diagram correlate to the modules defined in the operating system, illustrating how each module integrates into the broader business process.

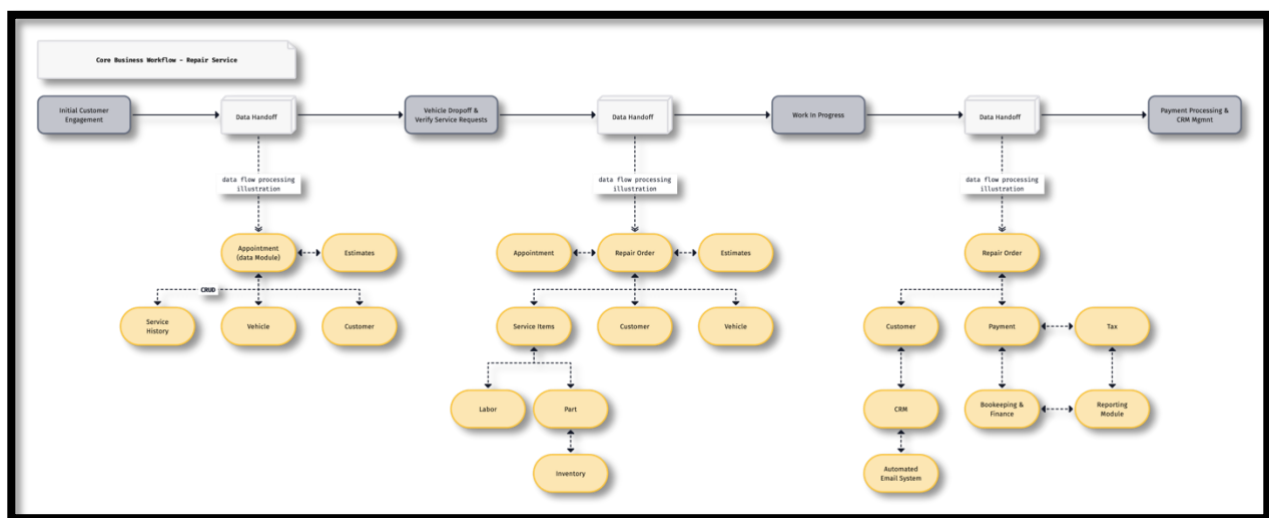


Figure 7: Core Business Workflow - Repair

These workflow charts are not merely illustrative but are core to our operational design, ensuring that each component of the Capsule Repair Shop's system is optimized for efficiency and scalability. Through these visual representations, we gain insights into the system's functionality and identify opportunities for automation and improvement, aligning with our mission to revolutionize the automotive repair industry.

Appendix C: Financial Projections

We detail the financial projections for Capsule Repair Shop, outlining our funding requirements, investment contributions, and team composition over a planned five-year investment timeline.

- 1) **Funding Requirement:** We are seeking \$1 million in funding to support the launch and growth of Capsule Repair Shop.
- 2) **Our Investment:** In addition to external funding, we are contributing \$200,000 of our own capital to the venture.
- 3) **Investment Timeline:** The financial projections are structured over a 5-year period, providing a roadmap for growth and development.
- 4) **Team Composition:** The financial strategy incorporates the employment of two full-time technicians, one full-time software developer, and one to two engineering interns, all under my leadership. This team structure is designed to ensure operational efficiency and innovation at Capsule Repair Shop.
- 5) **Financial Illustrations:** In the financial documents, you will find blue figures representing assumptions or projections, while black figures denote calculated values. These illustrations are essential for understanding the financial trajectory and potential return on investment for Capsule Repair Shop.

Note: To access detailed financial projections, please **double-click** on the image below to open the linked document or click [here](#).

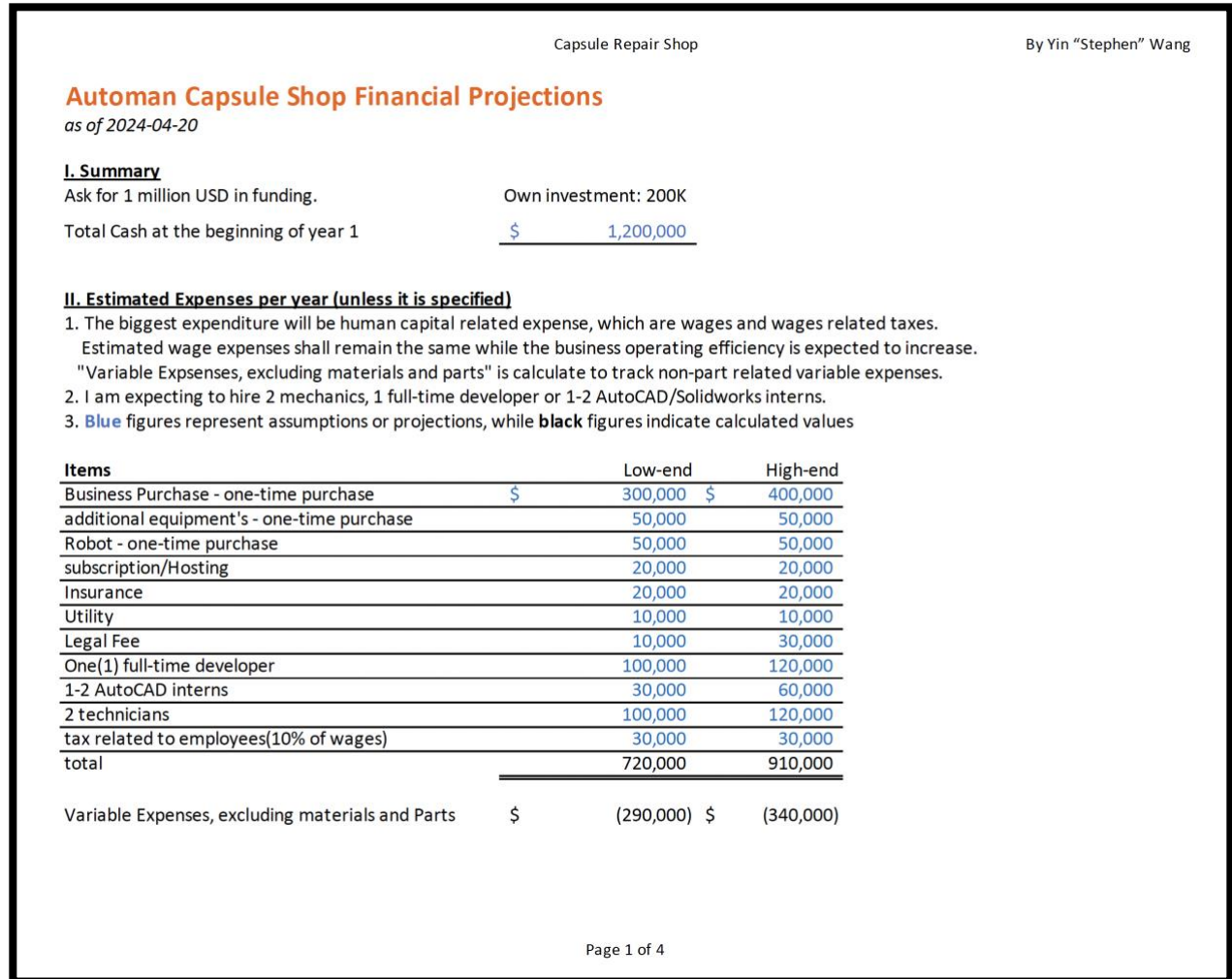


Figure 8: Detailed Financial Projections with conservative and optimistic estimates.

1. About the projections of Average Invoice Dollars

The concept of Average Invoice Dollars is a pivotal metric in the automotive service industry, where the norm typically surpasses \$400 per invoice, as outlined in Figure 9. An examination of 76 Pro Lube Plus (refer to [Appendix F](#)) reveals an encouraging trend where the average invoice value ascended from \$88 to \$130 within a year, yet it remains below the industry standard. This discrepancy underscores a prime opportunity for Capsule Repair Shop. Through the adoption of a nuanced pricing strategy, we anticipate elevating our profit margins without exceeding the industry's average costs. Such a strategic pricing approach not only aligns our services with industry benchmarks but also positions Capsule Repair Shop for enhanced revenue potential. For our financial forecasts, we have conservatively set our target average invoice dollars at

\$160 to \$200, underscoring our pragmatic yet optimistic outlook for revenue growth⁸.

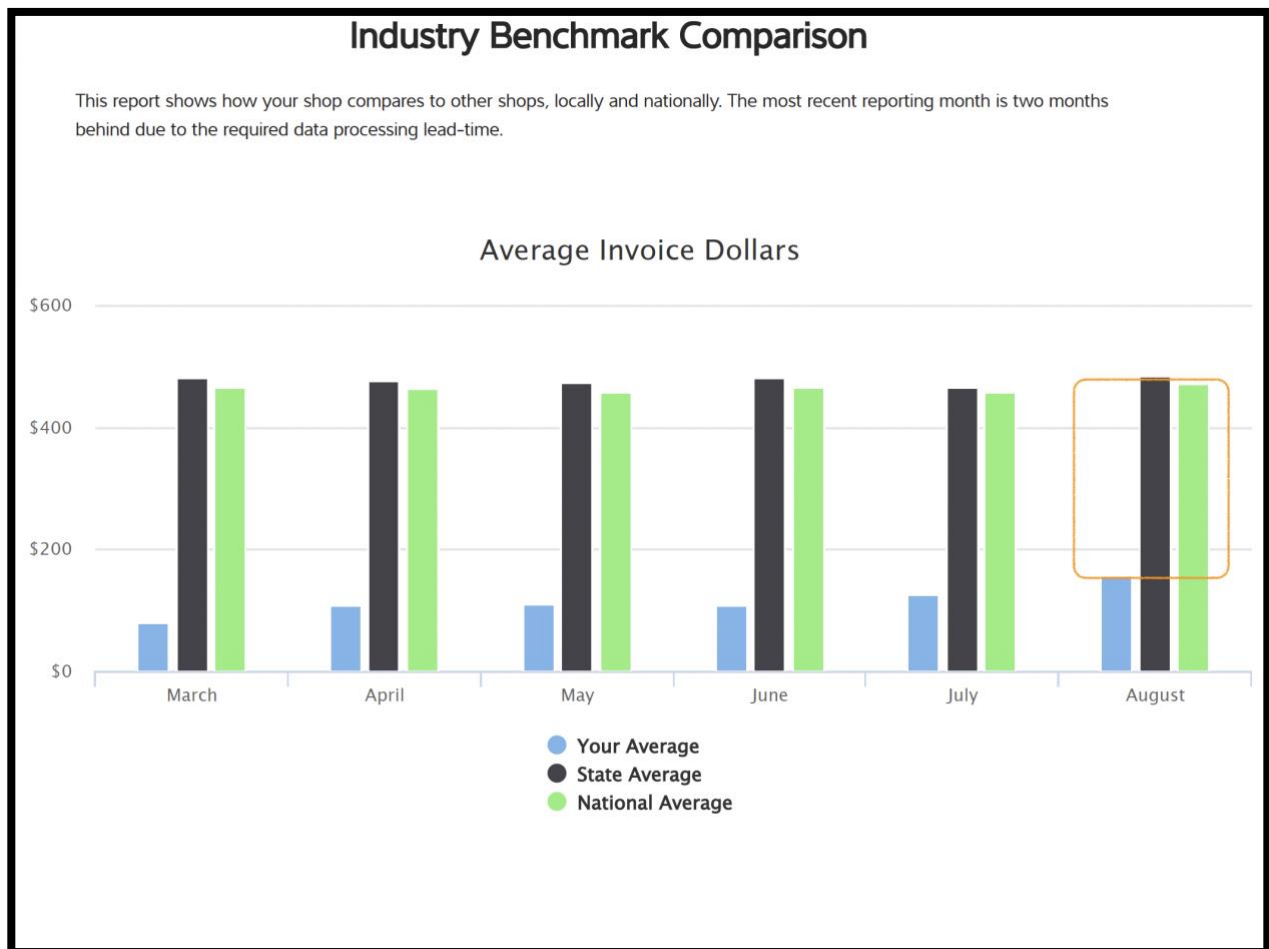


Figure 9: Average Invoice Dollars Benchmark

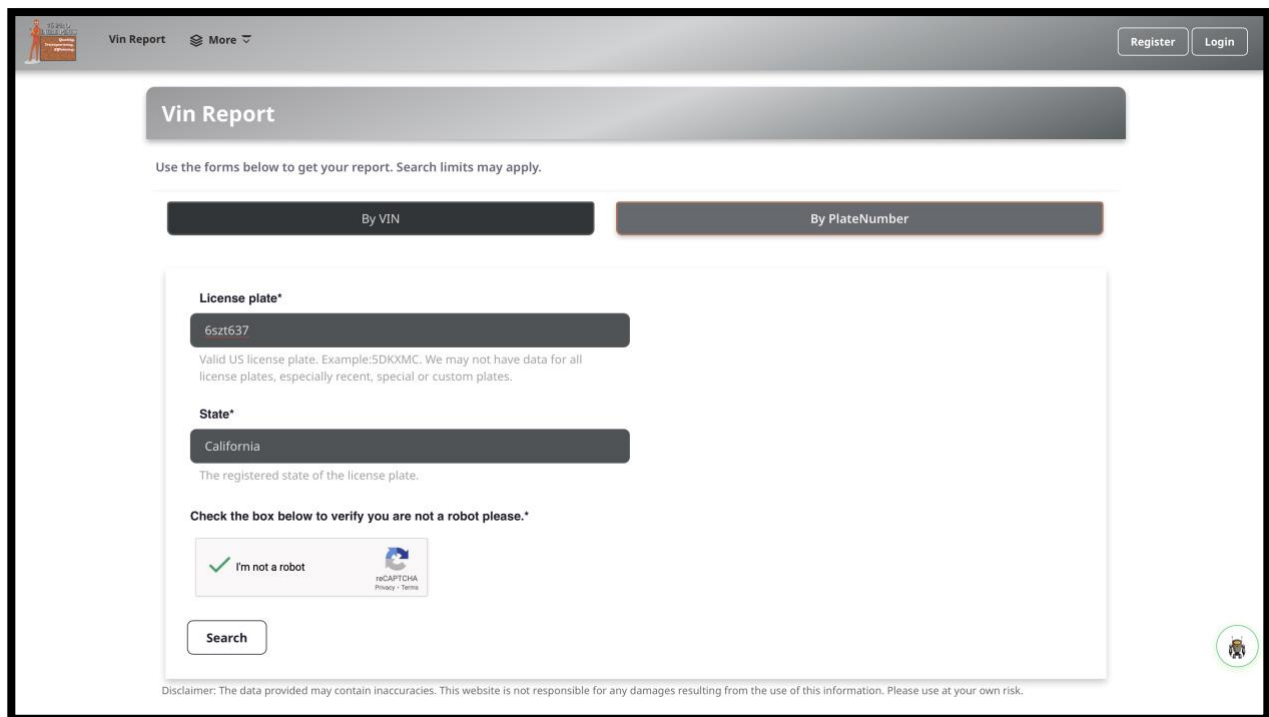
⁸ There is a fair chance that a recession could hit the US economy in the next 3 years.

Appendix D: Demonstrations of Capsule Shop’s Functionality

Appendix D provides a visual and functional overview of Capsule Shop's key features, illustrating the system's user interface and capabilities.

1. Vin Report

The Vin Report is a digital service that enables users to retrieve detailed vehicle information using the VIN or license plate numbers.



The screenshot displays the 'Vin Report' web interface. At the top, there is a navigation bar with the 'Vin Report' title, a 'More' dropdown menu, and 'Register' and 'Login' buttons. Below the navigation bar, a large grey header contains the text 'Vin Report'. Underneath, a subtitle reads 'Use the forms below to get your report. Search limits may apply.' Two tabs are visible: 'By VIN' and 'By PlateNumber'. The 'By PlateNumber' tab is selected. The form contains three main sections: 'License plate*' with a text input field containing '6szt637' and a note about valid US license plates; 'State*' with a dropdown menu showing 'California' and a note about the registered state; and a reCAPTCHA verification section with a checkbox labeled 'I'm not a robot' and a 'Search' button. A disclaimer at the bottom states: 'Disclaimer: The data provided may contain inaccuracies. This website is not responsible for any damages resulting from the use of this information. Please use at your own risk.'

Figure 10: Illustrates the interface for searching vehicle information via a license plate.

The following screenshot shows the result section.

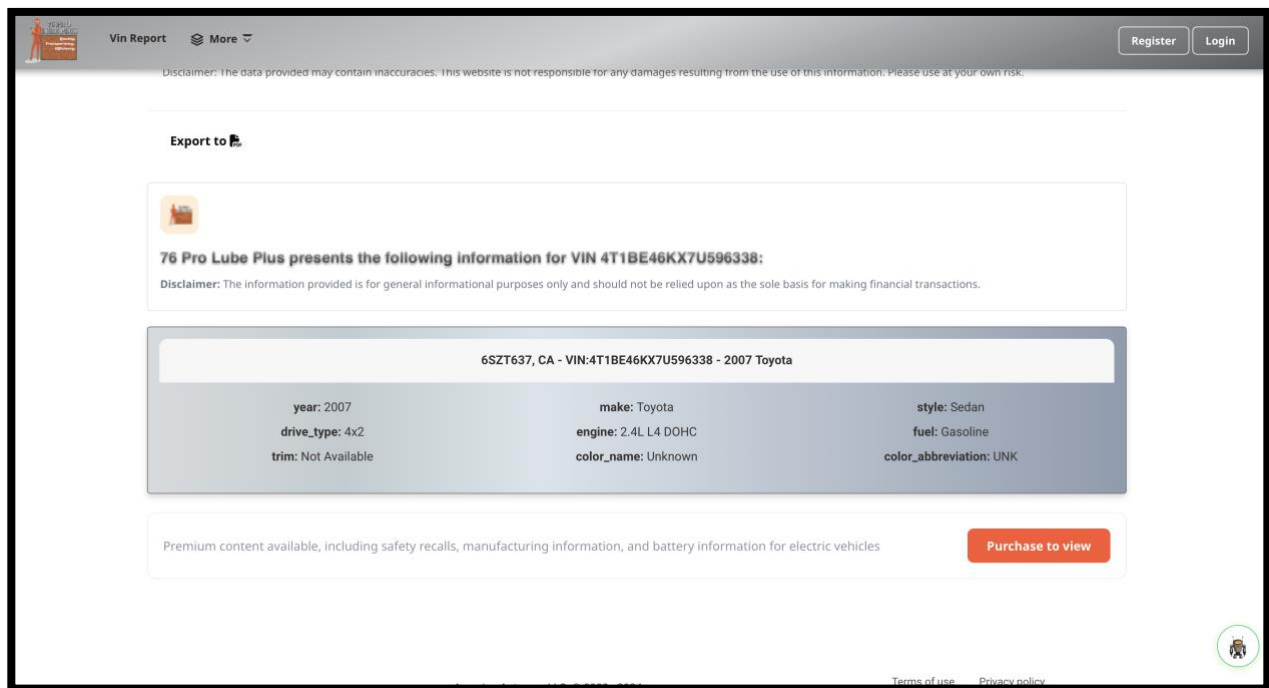


Figure 11: Shows the search results section for a license plate query.

2. Virtual Technician

It responds to automotive-related questions posted by customers.

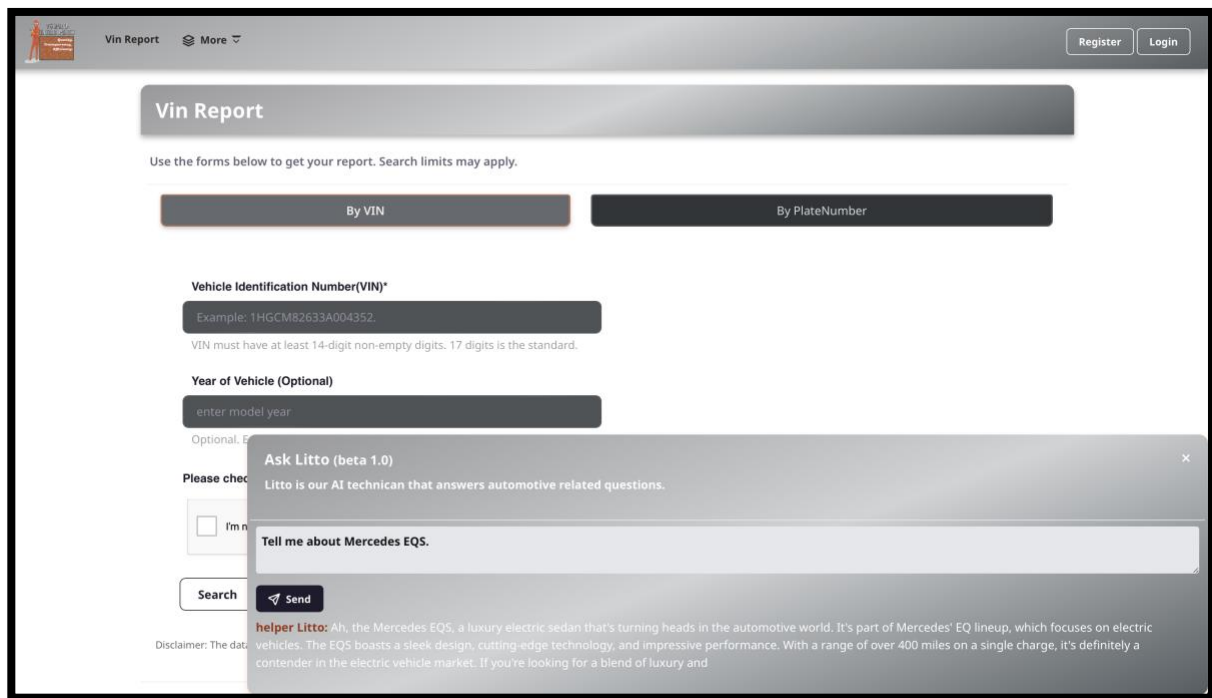


Figure 12: displays a conversation between user and Virtual Tech

3. Main Dashboard

To access this module and the following modules, a sign in is required. Use the demo employee user defined in [Appendix E](#).

The following screenshot displays the centralized dashboard for work. Each section represents a sub dash. For Instance, **1. Repair Orders** portal links to the repair order dashboard. This sub dash is responsible to manage repair order related functionality.

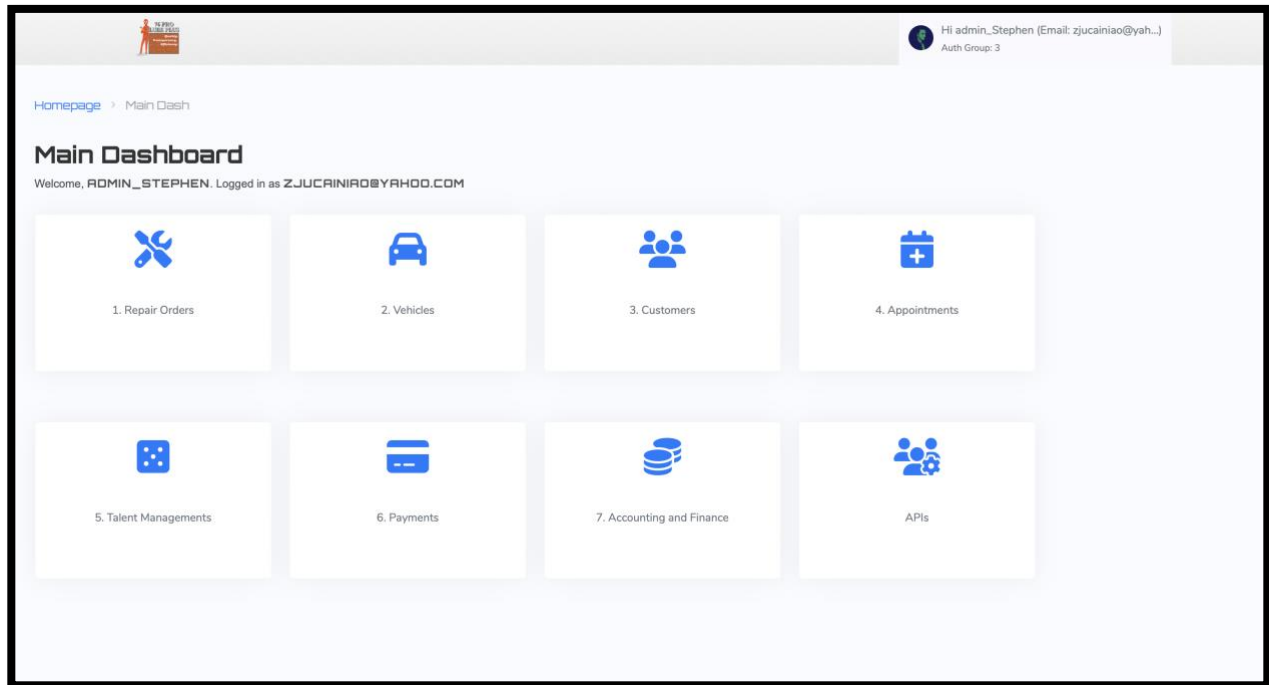
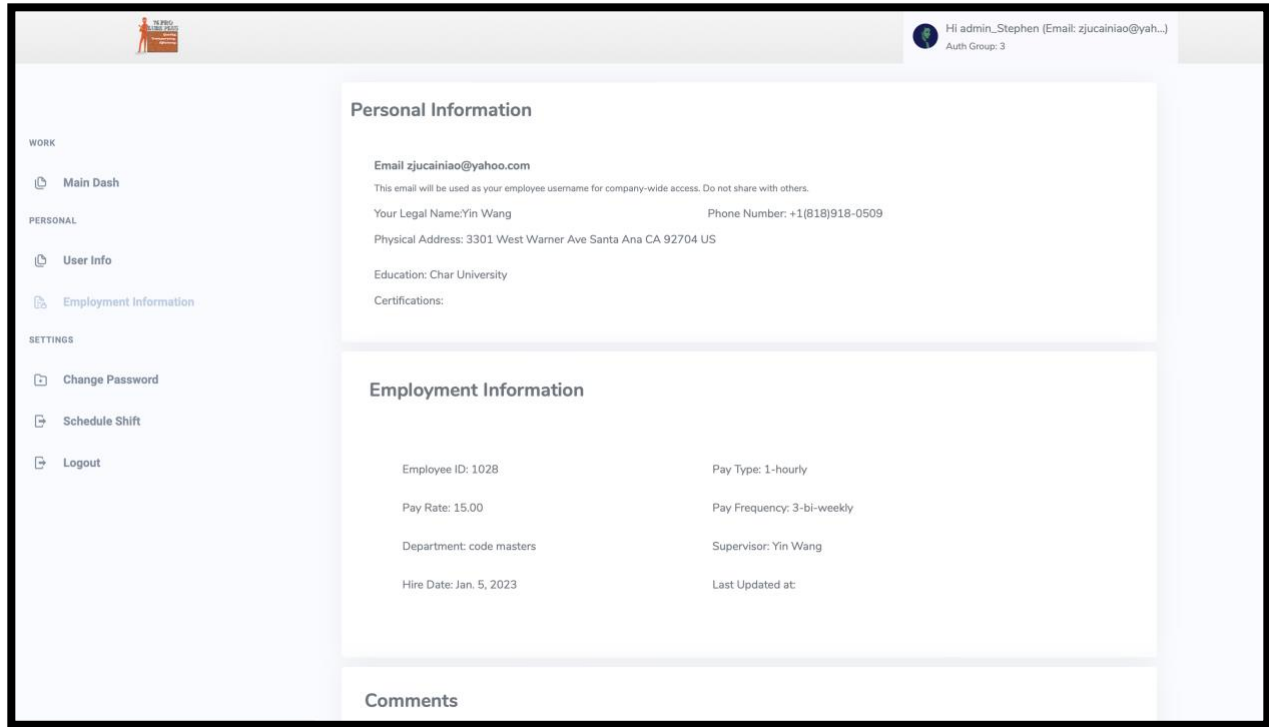


Figure 13: Centralized main dashboard for work.

4. Employee User Profile



The screenshot shows the 'Employee User Profile Page' for Yin Wang. The page is divided into a left sidebar and a main content area. The sidebar has sections for WORK (Main Dash), PERSONAL (User Info, Employment Information), and SETTINGS (Change Password, Schedule Shift, Logout). The main content area has a top header with the user's name and email. Below this, there are two main sections: 'Personal Information' and 'Employment Information'. The 'Personal Information' section includes fields for Email, Legal Name, Phone Number, Physical Address, Education, and Certifications. The 'Employment Information' section includes fields for Employee ID, Pay Type, Pay Rate, Pay Frequency, Department, Supervisor, Hire Date, and Last Updated at. At the bottom of the main content area is a 'Comments' section.

Personal Information

Email: zjucaainiao@yahoo.com
This email will be used as your employee username for company-wide access. Do not share with others.

Your Legal Name: Yin Wang Phone Number: +1(818)918-0509

Physical Address: 3301 West Warner Ave Santa Ana CA 92704 US

Education: Char University

Certifications:

Employment Information

Employee ID: 1028 Pay Type: 1-hourly

Pay Rate: 15.00 Pay Frequency: 3-bi-weekly

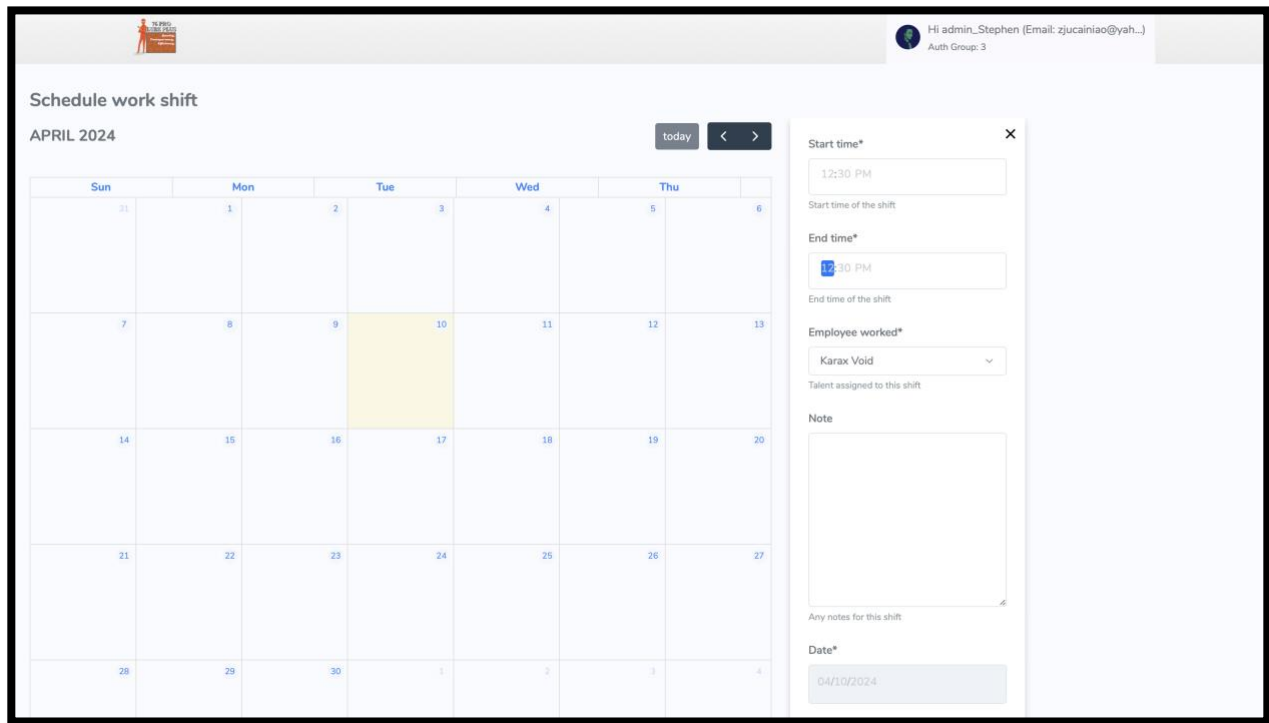
Department: code masters Supervisor: Yin Wang

Hire Date: Jan. 5, 2023 Last Updated at:

Comments

Figure 14: Employee User Profile Page

5. Schedule Management



The screenshot shows the 'Schedule Management' page. It features a calendar for April 2024. The calendar has columns for Sun, Mon, Tue, Wed, and Thu. The dates are numbered 1 through 30. A yellow highlight is visible on the 10th of the month. To the right of the calendar is a form for scheduling a shift. The form includes fields for Start time* (12:30 PM), End time* (12:30 PM), Employee worked* (Karax Void), and a Note field. There is also a Date* field at the bottom of the form.

Schedule work shift

APRIL 2024

today < >

Sun	Mon	Tue	Wed	Thu
21	1	2	3	4
7	8	9	10	11
14	15	16	17	18
21	22	23	24	25
28	29	30	1	2

Start time*
12:30 PM

End time*
12:30 PM

Employee worked*
Karax Void

Note

Date*
04/10/2024

Figure 15: schedule a shift for an employee.

6. HR Module

Within the HR Dashboard, users with HR roles can oversee employee records, including searching for employees via email.

A user with HR role can manage employee records. Here shows how an email-based search is done in Employee Management Dash.

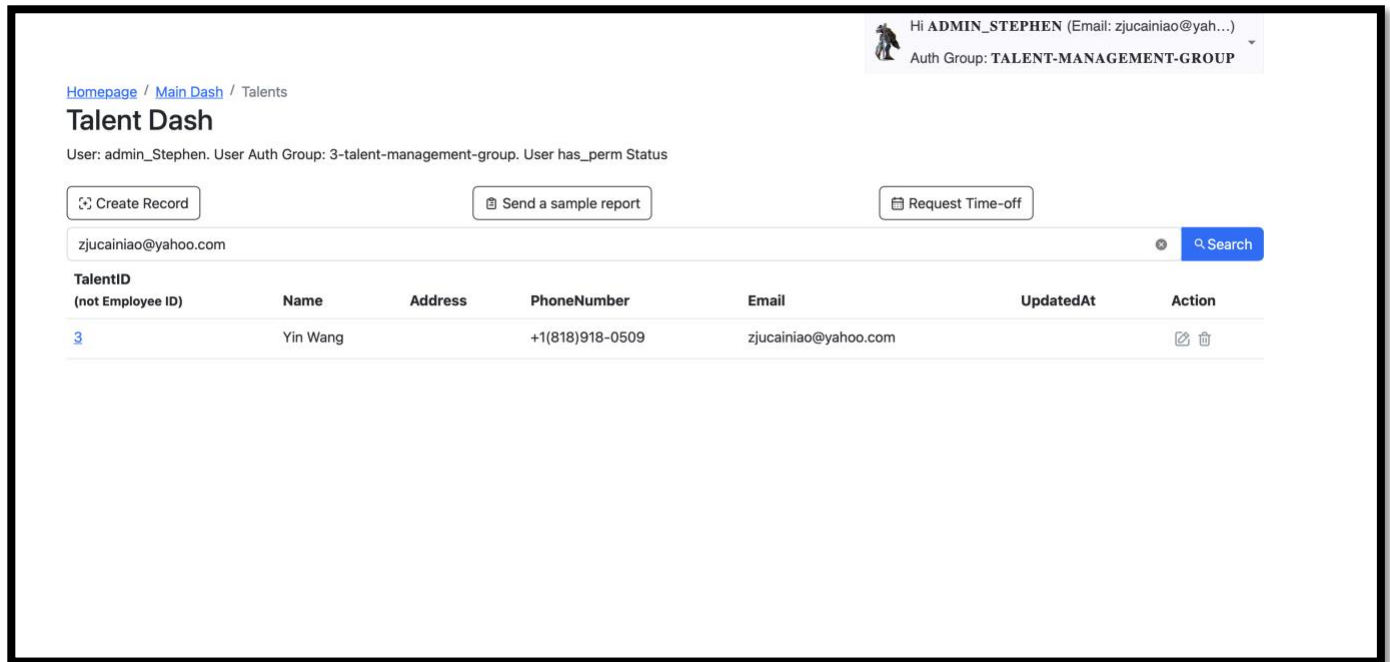


Figure 16: Depicts an email-based search on employee records.

The system allows the upload and cloud storage of relevant documents, providing a comprehensive view of employee profiles and ensuring easy access to necessary records.

Hi ADMIN_STEPHEN (Email: zjucainiaio@yah...)
Auth Group: TALENT-MANAGEMENT-GROUP

[Homepage](#) / [Main Dash](#) / [Talents](#) / Talent ID:3

Talent ID: 3 Edit

Updated at: 02/15/24

[Employee Overview](#) [Hours Worked](#)

Personal Information

Employee ID:1028	Last Name: Wang	Middle Name:
First Name: Yin	Preferred Name: Stephen	Primary Phone Number: +1(818)918-0509
Email: zjucainiaio@yahoo.com	Physical address: 3301 West Warner Ave Santa Ana CA 92704 US	
is mailing the same as in physical address?: True		
Physical address:		

Payroll Information

SSN: 8798561232	Pay Type: 1	Pay Rate: 15.00	Pay Frequency: bi-weekly
Hire Date: Jan. 5, 2023, 2 a.m.	Department: code masters	Supervisor: Yin Wang	

[view uploaded docs](#)

Upload Talent Documents

Talent document

Choose File

no file selected

Upload

Figure 17: Displays an employee record in Shop OS as HR group users.

Appendix E: Demo Employee User Account

Visit <https://new76prolubepius.com/employees/login/> and use the following combo to login:

Username: demo-employee-user@gmail.com,

Password: sd58hrZa4u

Use this demo user account for accessing components of the website that requires an signed-in employee user.

An employee user is an user account associated with an shop employee.

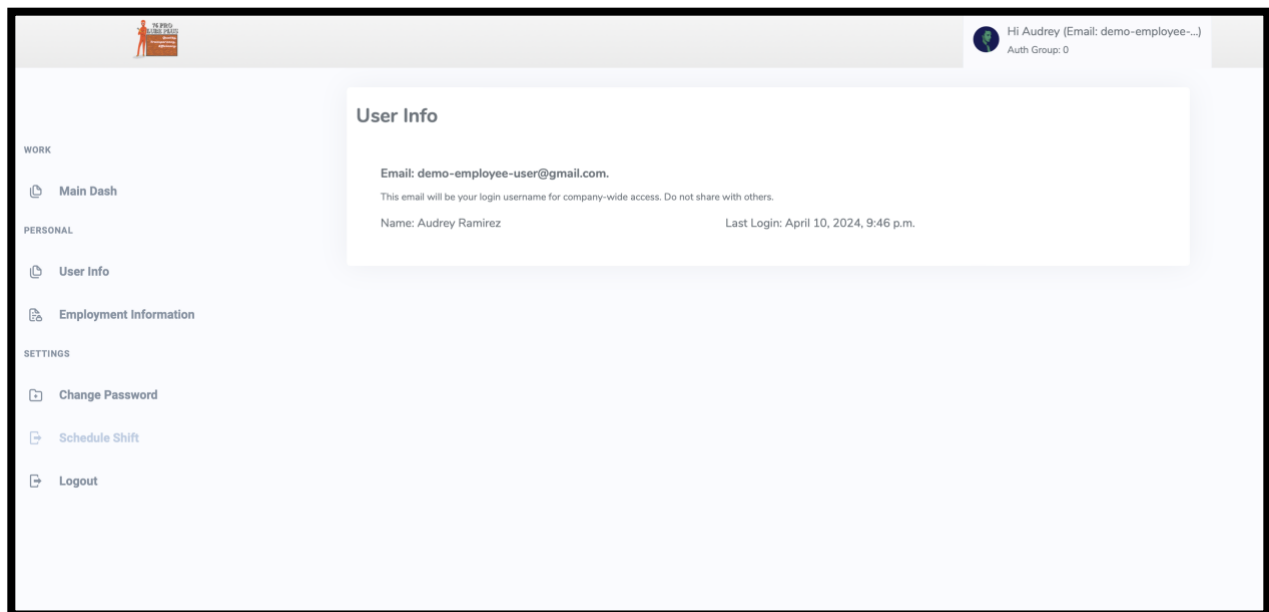


Figure 18: Profile of demo employee user.

Appendix F: Information about 76 Pro Lube Plus

76 Pro Lube Plus was an independent full-service automotive repair shop located in Garden Grove, CA. We maintained 4.3 out of 5 rating in Yelp. Closed in early 2023.

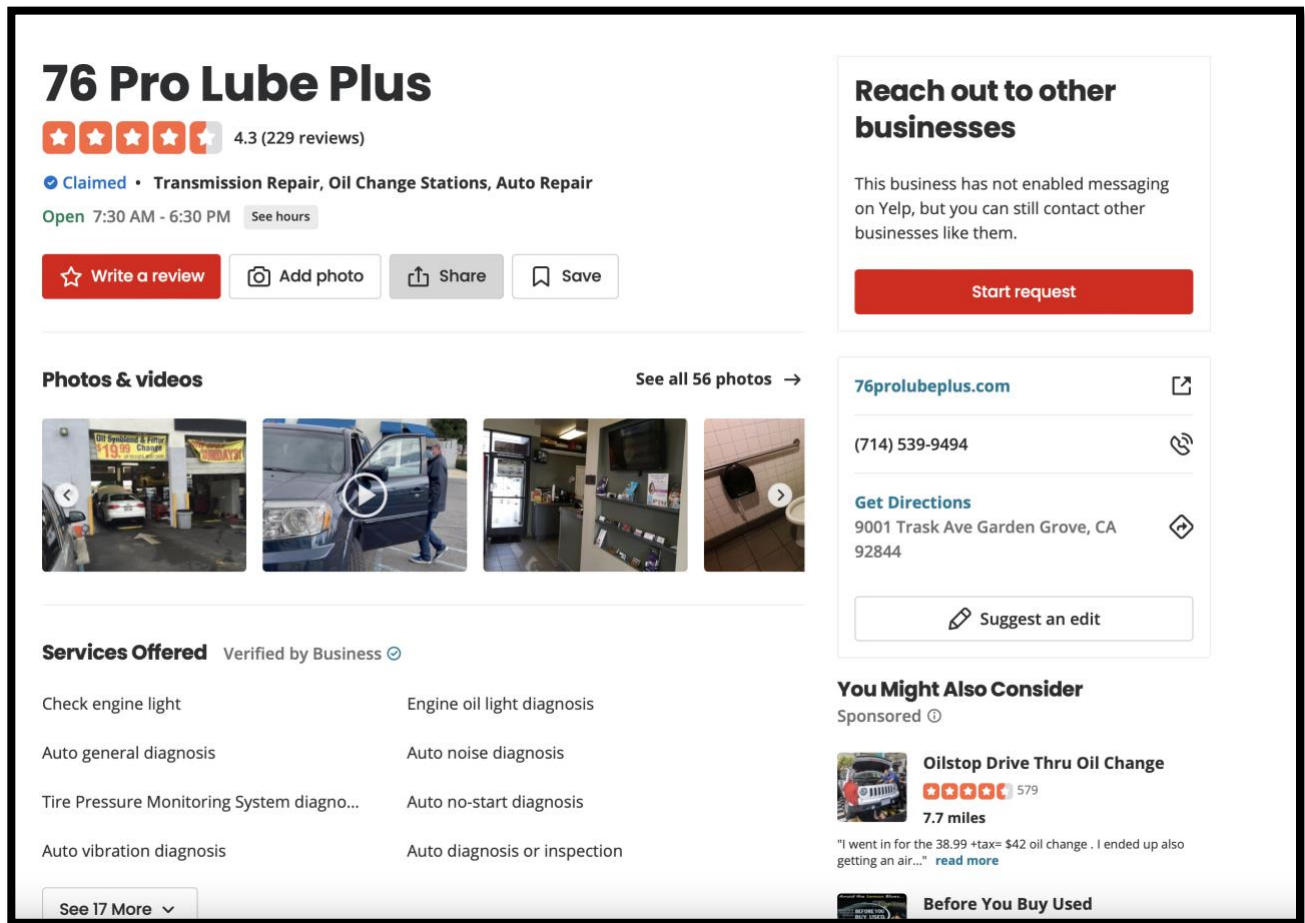


Figure 19: Yelp Business Page of 76 Pro Lube Plus

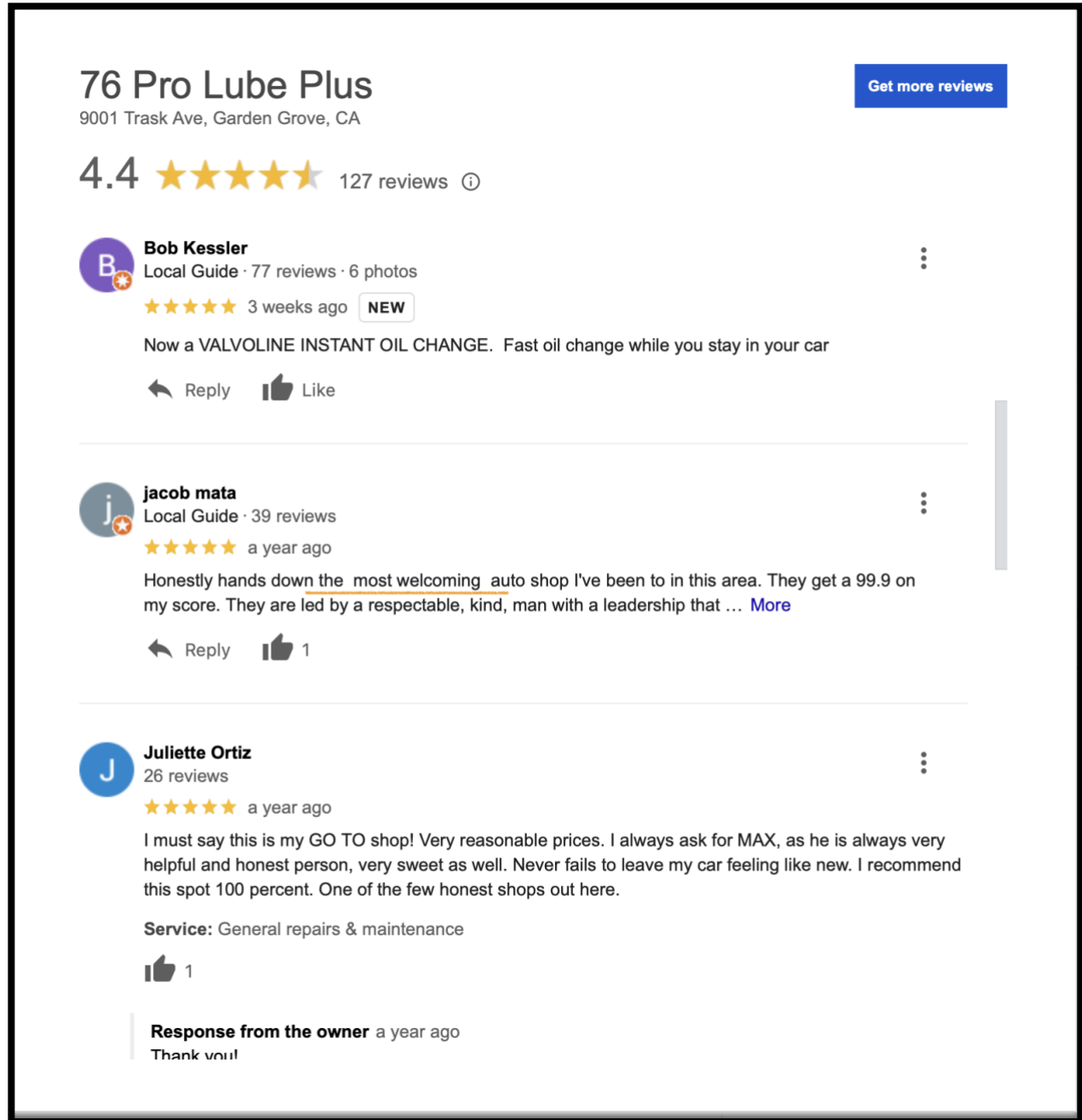


Figure 20: Positive Google Reviews



Figure 21: 76 Pro Lube Plus Shopfront

Industry Benchmark Comparison

This report shows how your shop compares to other shops, locally and nationally. The most recent reporting month is two months behind due to the required data processing lead-time.

Average Invoice Dollars

