

Visual flowcharts and process diagrams will be created to show how each module interacts. This clarity in planning strengthens project execution and ensures smooth collaboration among team members.

Define the Problem Statements

Customer Problem Statement Template:

Garage owners and service managers often face issues managing customer records, vehicle information, and service tracking manually. This leads to confusion, misplaced service data, and delays in repair or delivery. It creates frustration among both mechanics and customers who expect timely updates and accurate billing.

They need a digital Garage Management System that centralizes all operations — from customer registration and service scheduling to billing and inventory tracking. Such a system ensures smooth workflow, improves customer satisfaction, and minimizes operational delays.

By introducing automation and real-time record management, garages can enhance efficiency, reduce paperwork, and maintain accurate service histories. This solution will improve productivity, transparency, and service reliability for both staff and customers.

Reference: <https://miro.com/templates/customer-problem-statement/>

Problem Statement PS1:

As a garage owner, I am trying to manage customer information and vehicle service histories efficiently. However, I struggle because all data — including customer details, invoices, and service records — is stored manually in paper files.

This leads to errors, missing information, and delays in communicating service updates to customers. It also affects customer trust and the overall professionalism of the garage. I need an automated system to store and retrieve data easily, ensuring faster and more accurate service management.

Problem Statement PS2:

As a service manager, I want to schedule and track ongoing repairs and assign tasks to mechanics efficiently. But since there is no digital system, it's hard to monitor service progress, spare part usage, or time spent on each task. This causes confusion, delays, and customer dissatisfaction.

A centralized Garage Management System would allow real-time tracking of jobs, automatic notifications, and better workload management — improving coordination and service quality.

Empathize & Discover

Empathy Map Canvas:

In the Empathize & Discover phase, the team studies how garage owners, mechanics, and customers interact during daily

operations. They discover that garage staff often feel frustrated due to manual record-keeping, unclear service status updates, and communication delays between mechanics.

By interviewing stakeholders such as service managers, mechanics, and vehicle owners, the team uncovers pain points like misplaced service records, confusion in work scheduling, and lack of real-time updates on vehicle repairs. Customers, on the other hand, express frustration over not knowing when their vehicles will be ready or how much a repair will cost.

Gathering these insights helps the team understand the real challenges in garage management workflows. Understanding these day-to-day struggles shows the need for a centralized digital system that provides service tracking, automatic notifications, and transparent billing. These findings guide the design of a Garage Management System that simplifies operations, reduces delays, and improves customer trust.

Reference: <https://www.mural.co/templates/empathy-map-canvas>

The empathy map helped us visualize user challenges in managing garage operations. It revealed their pain points, goals, and needs for a more transparent and automated workflow. This process guided us to design an intelligent Garage Management System that supports all stakeholders — owners, mechanics, and customers — with real-time communication and task visibility.

Example: Vehicle Service & Maintenance Management

By deeply understanding users through empathy mapping, we identified key frustrations in daily garage activities — such as unclear service tracking, manual billing errors, and poor communication between staff and customers. These insights highlighted the need for automation and a digital service workflow.

As a result, we designed a Garage Management System that integrates:

- Digital service scheduling and assignment tracking
- Automatic reminders and service status alerts
- Centralized billing and inventory management

This ensures smooth coordination between mechanics and managers, minimizes service delays, and enhances customer satisfaction. The system ultimately improves accountability, transparency, and efficiency in garage operations.