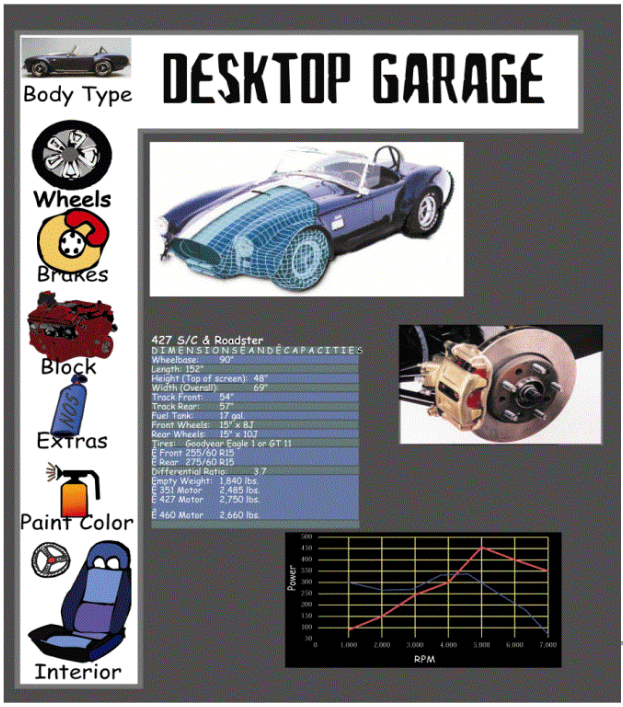
Desktop Garage Specification Document - March 8, 2002

Introduction



Desktop Garage is an early interactive software platform designed to bring the tools and expertise of automotive customization to users of all experience levels. The program combines modular customization, real-time performance evaluation, and user-friendly interfaces to create a scalable and adaptable environment for vehicle modification. The system integrates visual interactivity, real-world data, and technical considerations, providing a comprehensive solution for vehicle enthusiasts.

Core Features

1. **Customizable Vehicle Interfaces:**
    - **Users can modify various aspects of a vehicle, including engines, transmissions, wheels, tires, and performance components.**
    - **Real-time adjustments with dynamic visualization ensure ease of use and an engaging experience.**
2. **Modular System Design:**
    - **A hierarchical structure organizes features into subcategories, allowing for independent, scalable modules.**
    - **Add-ons, such as superchargers, turbochargers, and fuel injection systems, are managed seamlessly through modular integration.**
3. **Real-Time Data Integration:**
    - **Supports integration of pricing, compatibility, and technical specifications from external data sources.**

- **Provides an expandable framework for future upgrades and additional products.**

4. **Performance Evaluation:**
    - **Includes tools to compare "before and after" performance metrics, allowing users to visualize the impact of upgrades on a vehicle.**
5. **File Management:**
    - **Offers Save, Load, Export, and New Project functionality, ensuring user projects can be stored and reused efficiently.**
6. **Compliance and Safety Considerations:**
    - **Addresses safety, legal, and physical constraints, such as ensuring modifications meet Department of Transportation regulations.**
7. **Interactive Visual Tools:**
    - **Features a dynamic paint tool for customizing vehicle appearance.**
    - **Export capabilities allow users to integrate customized vehicles into racing simulations or games.**
8. **User-Focused Design:**
    - **A simplified interface balances advanced functionality with accessibility for users of all skill levels.**
    - **Comprehensive help menus and information sections support the learning process.**

Requirements and Deliverables

The Desktop Garage system is designed to meet both user and technical requirements while addressing real-world limitations. The Requirements and Deliverables diagram provides a visual breakdown of these considerations:

- **Information Needs:**
    - **Includes details on the types of cars, engines, and performance components available for customization.**

    - **Addresses questions like "What works?", "Why does it work?", and "How much does it cost?"**

- **Limitations:**
    - **Factors in safety, physical, and legal constraints.**
    - **Ensures compliance with industry regulations and compatibility with real-world vehicle designs.**

This system framework is intended to provide a balance between user expectations and technical feasibility, ensuring the product remains practical and reliable.

System Architecture

The Architecture diagram highlights the hierarchical and modular design of Desktop Garage. Key components include:

1. **Main Window:**
    - **Core interface elements such as Go to Garage, New, Save, Export, and Load are easily accessible.**
2. **Garage:**
    - **Organizes vehicle components into distinct categories, including:**
        - **Engines: Block, cylinder heads, and physical specifications.**
        - **Transmissions: Gears, transmission types, number of speeds, and gear ratios.**
        - **Wheels and Tires: Type and size customization for race or street conditions.**
        - **Performance Parts: Turbochargers, superchargers, intercoolers, and fuel systems.**
3. **Add-Ons and Customization:**
    - **Includes advanced options for adding intake systems, exhausts, and performance-boosting components like nitrous oxide.**
4. **Performance Evaluation:**

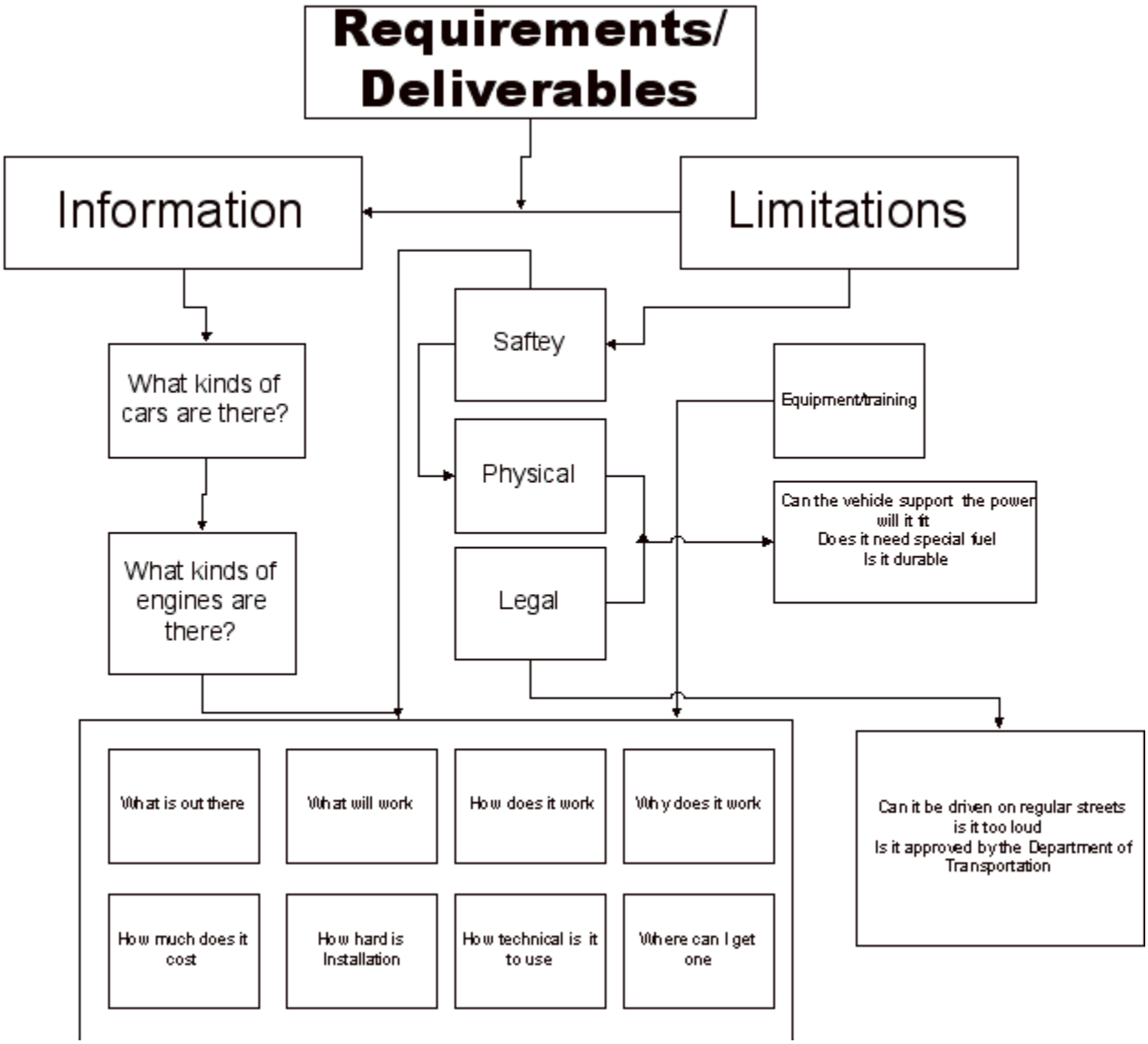
- **Visual tools for comparing vehicle performance before and after upgrades, including metrics for power, speed, and efficiency.**

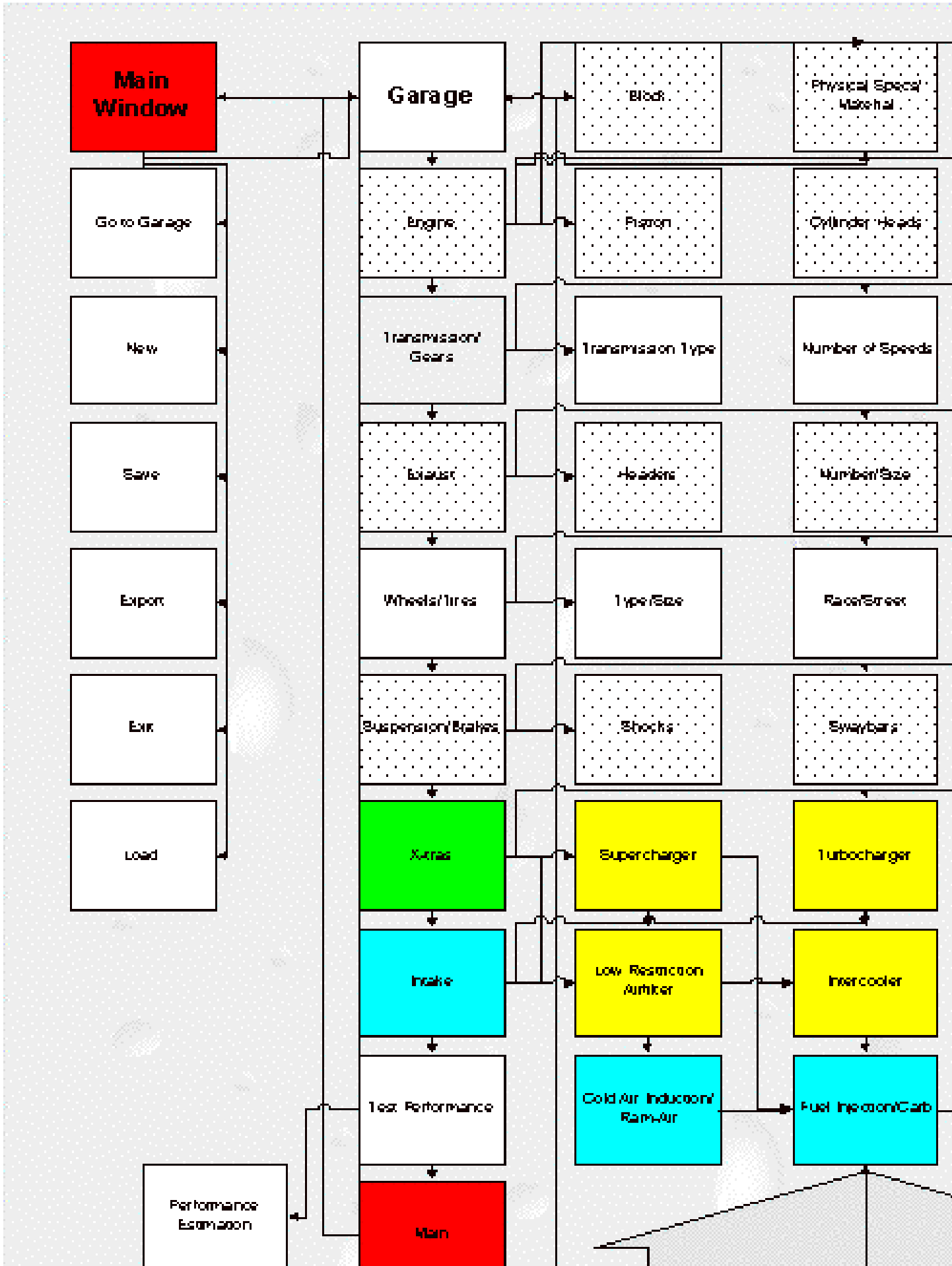
5. **Help and Information Submenus:**
    - **Dedicated sections for answering user queries and offering installation instructions or regulatory information.**

Technical and Functional Summary

Desktop Garage is built on a scalable and modular architecture that anticipates user needs and adapts to evolving technologies. The system's focus on customization, compliance, and usability establishes it as a versatile tool for both enthusiasts and professionals. The incorporation of performance evaluation, interactive visuals, and real-time data integration ensures that the software not only meets user expectations but also sets a standard for future applications in the automotive and customization industries.

With its innovative approach to modular design and interactivity, Desktop Garage demonstrates a forward-thinking methodology that bridges the gap between real-world applications and digital user experiences.


Requirements/ Deliverables
Information
Limitations
What kinds of cars are there?
What kinds of engines are there?
Saftey
Physical
Legal
Equipment/training
Can the vehicle support the power will it fit
Does it need special fuel
Is it durable
What is out there
What will work
How does it work
Why does it work
How much does it cost
How hard is Installation
How technical is it to use
Where can I get one
Can it be driven on regular streets is it too loud
Is it approved by the Department of Transportation


Main Window
Garage
Block
Physical Specs/ Material
Go to Garage
Engine
Piston
Cylinder Heads
New
Transmission/ Gears
Transmission Type
Number of Speeds
Save
Exhaust
Headers
Number/Size
Export
Wheels/Tires
Type/Size
Race/Street
Exit
Suspension/Brakes
Shocks
Sway bars
Load
Xtras
Supercharger
Turbocharger
Intake
Low Restriction Airfilter
Intercooler
Test Performance
Cold Air Induction/ Ram Air
Fuel Injection/Carb
Performance Estimation
Main