

Realization of Logistics ERP Management System Interface Design Based on Online Intelligent Design Platform

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Abstract: The user interface (UI) interaction experience of the logistics ERP management system is one of the key ways to achieve its efficient, convenient, and visualized operation. This article explores an innovative solution for interface design tailored to the characteristics of logistics ERP management systems, leveraging the online intelligent design platform "Js.Design". It elaborates on the design concepts of core content such as interface layout and functional modules, emphasizing the importance of adjustment and optimization based on the actual needs of the enterprise and business processes. At the same time, it points out the advantages and limitations of online intelligent design platforms, reminding users to pay attention to issues such as copyright, privacy, and data security when using the platform. This solution focuses on improving design efficiency and accuracy, enhancing the fun of human-computer interaction by integrating interactive elements such as touch vibration and screen visual shaking. Additionally, it optimizes the path planning process using genetic algorithms, reducing user recognition and waiting time. This design aims to enhance the efficiency and accuracy of design work through popular intelligent online design tools. It provides valuable references for front-end developers in system interface design, promoting the development of intelligent design and bringing more potential and opportunities for the information management of modern logistics enterprises.

1. Introduction

With the rapid development of intelligent online design tools, design platforms such as Figma, Fankeweb, MAKE, and "Js.Design" that can be used without installation and solely through browsers have gradually emerged. These web-based online design products provide designers with convenient and efficient design tools, meeting the high demands of modern information society for design efficiency and quality. As information complexity continues to increase, intelligent design has become an essential driving force for product design innovation. Specifically, "Js.Design", an online collaborative UI design platform, boasts a vast design resource and material library,

supporting the import of Sketch format files. It offers users diverse design templates and a rich material bank. This platform possesses robust design functions, including collage, font editing, sticker application, background customization, and one-click output, significantly enhancing designers' work efficiency. Compared to traditional design tools, JS Design" pays more attention to cloud-based file management and team collaboration, integrating design tools with multiple platforms to achieve a one-stop solution for the entire design process, bringing unprecedented convenience to designers.

2. Preliminary Preparations for Design

2.1. Clarifying Interface Design Needs and Objectives

Before commencing the design process, it is crucial to clarify the goals and requirements for UI design. A thorough understanding of the core functions and business needs of the ERP system is essential to defining the purpose and expected outcomes of the interface design [1]. It is also necessary to determine the target user group, comprehend their usage habits and preferences, as well as brand style, to ensure the design of an interface that better meets user needs.

2.2. Understanding Key Factors in Interface Design

The logistics ERP system is considered an indispensable information tool for modern logistics enterprise management. It integrates enterprise logistics operations onto an ERP platform, enabling information sharing, business collaboration, full-process control, and consistent information management. The logistics ERP covers various aspects of logistics management, including supply chain management, warehouse management, and distribution management, leveraging advanced technology to optimize, enhance, and transform logistics enterprises.

The logistics ERP system encompasses various business management functions such as order management, inventory management, transportation management, and financial management. Through the ERP, enterprises can have real-time access to order status and progress, improving order processing efficiency and accuracy. They can also gain real-time visibility into distribution, increasing efficiency and accuracy while reducing issues and disputes during the process. Inventory operations such as counting, receiving, issuing, and transferring can be performed to ensure the accuracy and timeliness of inventory data. Additionally, transportation management, including vehicle scheduling, route planning, and transportation monitoring, ensures safe and timely delivery of goods. The system also manages enterprise resources like personnel, vehicles, and warehouses, improving resource utilization efficiency [2].

Moreover, the logistics ERP system has data analysis capabilities, supporting enterprises in data analysis and decision-making, providing strong support for strategic development. Through the ERP system, enterprises can more effectively control quality, cost, and time, delivering superior freight services to customers.

Based on the above factors, ERP management interface design is a complex and crucial process that involves the enterprise's core business processes, data management, and user experience. The main considerations for its interface design include:

1) User-friendliness: The interface design should be intuitive and concise, enabling users to quickly understand and operate it effortlessly. Avoid complex layouts and excessive information stacking to maintain a clear and tidy interface.

2) Consistency: Maintain consistency in interface design across the entire ERP system. Use unified fonts, colors, icons, and layout styles to enhance user cognitive coherence and operational habits.

3) **Modular Design:** Divide the interface into different areas or pages based on the ERP system's functional modules. Each module should have clear identification and functional descriptions to facilitate users' quick navigation to the desired operations.

4) **Data Visualization:** Utilize visual elements like charts, images, and colors to present complex data in an intuitive manner. This helps users quickly grasp the meaning behind the data, enhancing decision-making efficiency.

5) **Responsive Design:** Consider that different users may use different devices and screen sizes. The interface design should be responsive, ensuring a good user experience across various devices, including desktops, tablets, and mobile phones.

6) **Customizability:** Different enterprises may have different business processes and needs. Therefore, the ERP management interface should have a certain level of customizability, allowing users to adjust the interface layout, add or remove functional modules based on their needs.

7) **Security:** In interface design, sufficient consideration should be given to data security and privacy protection. Adopt encryption technology, permission management, and other measures to ensure the security and integrity of user data.

In summary, ERP management interface design is a complex process that requires comprehensive consideration of multiple factors. By optimizing the interface design, it can enhance user efficiency, reduce operational costs, and ultimately create greater value for the enterprise.

3. Detailed Content of Interface Design Planning

The design of the ERP management interface should cover aspects such as basic layout, functional modules, data display, and user interaction. Below is a simplified example of a draft ERP management interface design:

3.1. Interface Layout Design

1) **Top Navigation Bar:** Includes the company's logo, user avatar, system name, and major navigation menu items such as "Home Page," "Order Management," "Inventory Management," "Financial Management," etc.

2) **Left Sidebar Menu:** Lists the submenus of each functional module in detail, such as "Order Inquiry," "Order Creation," "Inventory Counting," "Financial Statements," etc.

3) **Main Content Area:** Displays the data and operational interface of specific modules, which dynamically changes based on the user's selected functional module.

4) **Bottom Status Bar:** Displays information about the current logged-in user, system time, version details, etc.

3.2. Functional Module Design

1) **Order Management Module:**

Order List: Displays an overview of all orders, including key information such as order number, customer name, order status, order time, etc.

Order Details: Upon clicking a specific order, it displays detailed information about the order, such as the product list, order amount, shipping address, etc.

Order Operations: Provides operation buttons for changing order status (e.g., confirmation, shipment, completion), editing, and deleting orders.

2) **Financial Management Module:**

Accounting: Includes general ledger, detailed ledger, voucher management, etc.

Financial Analysis: Provides financial statements, budget analysis, cost control, and other

functions.

Accounts Receivable and Payable: Manages the enterprise's accounts receivable and payable, including invoices, payments and collections, aging analysis, etc.

Fund Management: Predicts, plans, and controls the enterprise's capital flow.

3) Inventory Management Module:

Purchase Management: Includes supplier management, purchase orders, receiving, returns, and other functions.

Inventory Management: Manages the inventory of raw materials, semi-finished products, and finished products, enabling real-time tracking and alerts.

Sales Management: Manages sales orders, shipment, returns, customer management, etc.

Logistics Management: Coordinates and manages internal logistics activities such as transportation, warehousing, and distribution.

4) Customer Relationship Management Module:

Customer Information Management: Includes customer profiles, contacts, contracts, etc.

Sales Opportunity Management: Tracks sales opportunities and predicts sales revenue.

After-sales Service Management: Provides after-sales service support such as product repairs, returns, and exchanges.

Customer Relationship Maintenance: Maintains good customer relations through customer follow-ups, satisfaction surveys, and other methods.

5) Project Management Module:

Project Planning: Develops plans for project time, cost, quality, etc.

Project Execution: Monitors project progress, cost, and quality to ensure the project proceeds as planned.

Project Change Management: Manages change requests during the project process to ensure smooth progress.

Project Closure: Evaluates project results and benefits, summarizing experiences and lessons learned.

When designing the functional modules of the ERP system, it is necessary to fully consider the enterprise's actual needs and business processes to ensure the system's practicality and usability. At the same time, it is also necessary to consider the system's scalability and maintainability to cope with the enterprise's future development and changes.

3.3. Data Display Design

1) Table Display: Uses clear tables to display data, supporting basic operations such as sorting, filtering, and pagination.

2) Chart Display: For data requiring statistical analysis, it can use chart forms such as bar charts and line charts to visually display data trends and comparisons.

3.4. User Interaction Design

1) Prompt Information: When users perform critical operations, such as deleting orders, a confirmation prompt box should pop up to prevent accidental operations.

2) Error Handling: For user input errors or system errors, there should be clear error messages to guide users to correct the errors.

3) Shortcut Operations: Provides commonly used shortcut buttons or hotkeys to improve user operation efficiency.

3.5. Visual Design Effect

- 1) Color Matching: Uses the company's brand color or commonly used colors in the industry to maintain the overall style's unity and harmony.
- 2) Icon Design: Uses concise and clear icons to assist textual descriptions, improving the interface's readability.
- 3) Font Selection: Selects fonts with good readability to ensure clarity on different devices and screen sizes. (is shown in Figure 1)

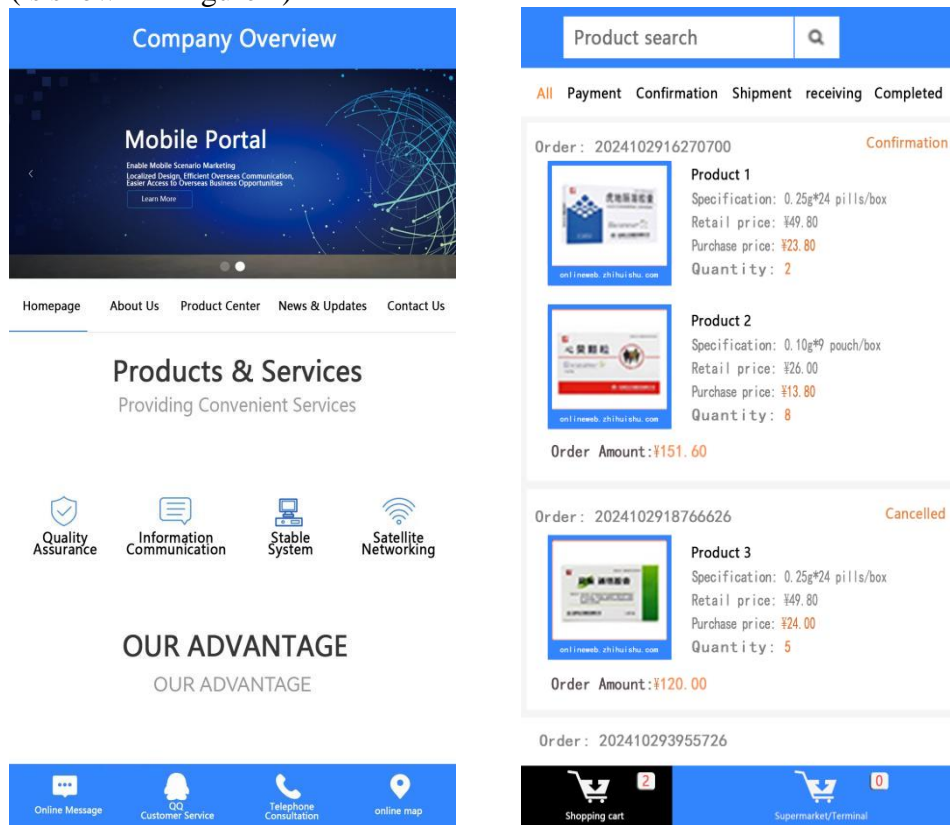


Figure 1: Company overview page and order management module

4. Creating the Project and Setting up the Basic Framework

4.1. Mastering the Basic Operations of the Tool

Invest some time in learning the fundamental operations of the chosen design tool. These tools typically offer functions such as user interface elements, layer management, color selection, and text editing. Understanding these basic operations will facilitate your use of the tool. Create a new project on the online design platform and set up the basic framework of the interface, including dimensions, layout, and color schemes [3].

4.2. Initiating the Sketch

Based on the functions and business processes of the ERP system, plan the various regions and modules of the interface reasonably. Create a sketch: Before starting to create the UI, it is still necessary to use paper and pencil or an online drawing tool to create a sketch. The sketch can help you quickly experiment with different layouts and element arrangements before designing.

4.3. Designing the UI Interface

This study uses the online design tool of choice to start creating the UI interface. This study sets the canvas size as needed and starts adding the required UI elements such as buttons, text boxes, images, and so on. This study takes advantage of the various capabilities provided by the tool to adjust the size, color, font, and other attributes of elements.

4.4. Designing Interface Elements and Components

This study uses the tools and data provided by the online design platform to design various elements and components in the interface, such as buttons, input fields, labels, charts, etc. This study focuses on consistency in element style and visual hierarchy to ensure that the interface is both beautiful and easy to understand. (As shown in Figure 2)

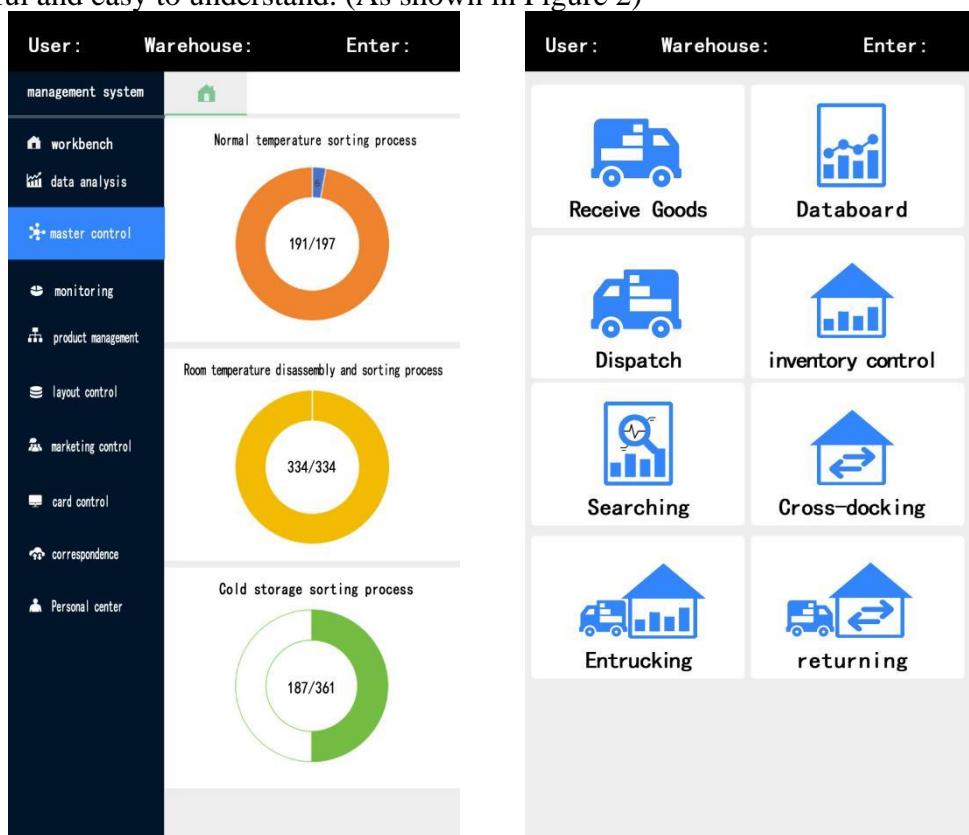


Figure 2: ERP system data analysis and inventory management module

4.5. Implementing Interactive Effects and Animations

In this study, interactive effects and animations are added to interface elements to enhance user experience and operation convenience. This study pays attention to the fluency and naturalness of animation to avoid unnecessary interference to users [4].

4.6. Considering User Experience

The user experience is always taken into account throughout the design process. This research ensures that the UI interface is easy to use, the navigation is clear, and the user's expectations are met. Simplify the interface as much as possible, enabling users to complete tasks effortlessly.

4.7. Conducting User Testing and Collecting Feedback

In the design process, the target users are invited to test the interface and their feedback and suggestions are collected. The study maintains communication and seeks feedback with the team or client during the design process. This study modifies and improves based on feedback until the desired UI design is achieved. Based on the user test results, this study optimizes and improves the interface design to ensure that user needs are met.

4.8. Exporting and Delivering the Design Results

Once the design is complete, export the interface design into a deliverable format, such as an image, code, or design document. This research is coordinated with the development team to ensure that the design results can be smoothly translated into the actual ERP system interface.

5. The Advantages and Issues of Using Online Smart Design Platforms

5.1. Advantages

1) **Enhancing Design Efficiency:** Bypassing the time-consuming process of downloading and installing design software, users can start designing online instantly by simply opening a web browser and scanning a QR code to log in. This streamlined process saves time, and with features like real-time simulations and optimized design, online smart design platforms can accelerate the design process, reduce repetitive work, and significantly improve design efficiency. Creating complex, irregular, or semi-transparent slices is also straightforward; just select a layer group and click the "+" button in the export panel to generate the slice. Sending the file link to the development team completes the front-end work [5].

2) **Reducing Design Costs:** These platforms assist designers in avoiding unnecessary errors and waste during the design process, thereby reducing design costs. Standardized resources enable one-click import of resources when designing for Apple devices, WeChat platforms, or specific project types (e.g., digital visualizations, B-end backend systems), rapidly setting up the prototype of product interface design and greatly enhancing UI design efficiency.

3) **Improving Design Quality:** By predicting design outcomes, the platform helps designers identify and adjust issues promptly, enhancing design quality. Designers can create personal material libraries, including complete APP works, UI components, product prototypes, illustrations, icons, mockups, portfolios, and more.

4) **Easy to Use:** The software interface is similar to XD, Figma, and Sketch, making it easy for users with experience in these tools to get started quickly. With built-in official resource libraries, users can save time searching for materials, even for novices, making UI design as convenient as building with blocks. UI design requires no placeholder images; users can search for images directly in the software, select a container, click an image, and complete the filling process smoothly without switching between software. Global search functionality, with all files stored in the cloud, allows users to find files easily by entering keywords, even with thousands of files [6].

5) **Real-time Collaboration:** Support for XD, Figma, and Sketch file imports and compatibility between different design file formats enhances collaboration capabilities. Direct editing of files in formats like .Sketch, .Xd, .Fig, and others allows resources from different file formats to be used on the same platform, significantly improving collaboration efficiency. The platform also supports simultaneous collaboration by multiple users, enabling designers to view and edit design projects in real-time, enhancing team collaboration efficiency.

6) **Abundant Resources:** The platform typically provides a vast array of design resources like

fonts, icons, images, etc., making it easy for designers to find the materials they need. Intuitive and user-friendly interfaces and rich templates enable even users without professional design backgrounds to create high-quality design works effortlessly. Font management is convenient, supporting official cloud font libraries, local font libraries, and third-party font management solutions, ensuring font availability across devices and supporting local font uploads to the cloud.

7) High-Fidelity Prototype Demonstration: The platform supports simulating product processes, including components, pages, back buttons, external links, and one-click region scrolling, providing more complete details and realistic effects.

5.2. Issues

1) Limited Personalization: Online smart design platforms often provide preset templates and tools, which may restrict designers' creativity and imagination. Long-term reliance on these platforms may hinder designers' skill development as they become overly reliant on the platform's tools and functions, neglecting to learn and improve traditional design skills.

2) Copyright and Privacy Concerns: When using materials and templates provided by the platform, users must be mindful of copyright issues to avoid infringing on others' intellectual property rights. Additionally, users should protect their sensitive personal information to avoid disclosure on the platform.

3) Functional Limitations: While online smart design platforms offer numerous design tools and functions, they may not fully satisfy specific requirements or complex design tasks. For highly customized or specialized design projects, users may need to use other professional software or seek the assistance of professional designers.

4) Data Security Risks: Online platforms involve the storage and transmission of user data, posing potential data security risks. Platform operators must adopt strict data protection measures.

5) Network and Technology Dependence: Online smart design platforms require stable network connections and computer equipment support. Any failures or issues may affect the normal progress of design work. Additionally, technically unfamiliar users may encounter difficulties or challenges.

6) Cost Control: Many online smart design platforms offer free resources or trial versions, but the results may not meet users' needs. Users can leverage these resources to complete simple design tasks. It is also advisable to keep an eye on the platform's promotional activities and discounts to obtain more free or discounted resources.

7) Specific Needs: Sometimes, the functions of online intelligent design platforms may fail to meet certain specific requirements, and external resources or tools are still needed to assist in design in order to reduce the dependency on the platform and lower the design costs for individuals or teams.

6. Conclusion

Online intelligent design platforms have become increasingly popular in today's digital era, offering designers and non-professional users numerous conveniences such as high usability, rich resources, and real-time collaboration. However, just like any technological tool, they have both obvious advantages and some potential issues, such as limited personalization, functional constraints, reliance on network and technology, etc. It is essential to make choices based on one's actual needs and circumstances to ensure optimal design experience and outcomes. Meanwhile, attention should also be paid to protecting one's intellectual property rights and data security.

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