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Interface Design and Implementation of Airport General Flight Information Display System

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Abstract: This paper aims to explore the interface design and implementation of the airport general flight information display system. Through the analysis of the requirements and functional design of the system, this paper proposes a user experience-based interface design scheme, and implements the scheme through front-end technology. The experimental results show that the interface design scheme proposed in this paper can effectively improve users' experience and operation efficiency.

Keywords: Airport; Flight information display system; Interface design; User experience; Front-end technology.

1. Introduction

With the rapid development of the civil aviation industry, the universal flight information display system for airports [1] has become increasingly mature, and the application of flight information display systems in civil airports [2] has become increasingly common, becoming an indispensable part of modern airports. Whether it is the flight information display system for small and medium-sized airports [3] or the new generation flight information display system - the flight information display system for the new terminal of Capital International Airport [4], the system provides convenient travel services for passengers by displaying flight status, flight plans, flight schedules, boarding gate information, etc. Therefore, a user-friendly and easy to operate system is designed A fully functional airport universal flight information display system is crucial.

This article aims to explore the interface design and implementation of the airport general flight information display system. Firstly, conduct a requirement analysis and functional design of the system to clarify the functions and user requirements that the system needs to achieve. Then, an interface design scheme based on user experience design is proposed to improve the user experience and operation efficiency. Finally, the scheme was implemented using front-end technology and experimentally validated.

2. Requirement analysis and functional design

2.1. Requirement analysis

The main users of the airport general flight information display system are passengers and staff. Passengers need to understand flight status, flight plan, boarding gate information, etc. through this system in order to better arrange their itinerary. Staff need to manage and publish flight information through this system to ensure the smooth progress of various airport operations. Therefore, the system needs to achieve the following functions:

1). Display flight status: departure status, arrival status, delay status, etc.

2). Display flight plan: flight number, takeoff and landing time, aircraft type, etc.

3). Display flight schedule: flight takeoff and landing time, flight number, aircraft type, flight status, etc.

4). Display boarding gate information: boarding slogan, boarding time, flight status, etc.

5). Flight information management: operations such as adding, modifying, and deleting flight information.

6). Flight information release: The time, content, scope, etc.

2.2. Functional design

Based on the requirement analysis, this article has designed the following functional modules:

1). Flight status module: Implement the display and management of flight status.

2). Flight Planning Module: Implement the display and management of flight plans.

3). Flight Schedule Module: Implement the display and management of flight schedules.

4). Boarding gate information module: Realize the display and management of boarding gate information.

5). Flight information management module: Implement operations such as adding, modifying, and deleting flight information.

6). Flight information release module: Implement the time, content, scope, etc. of information release.

3. Interface design scheme

3.1. Design ideas

The interface design scheme in this paper is based on user experience design, aiming to improve the user experience and operation efficiency. The specific design concept is as follows:

1). Clear and concise interface: In interface design, we try to reduce redundant and useless information as much as possible to maintain the simplicity and clarity of the interface.

2). Consistent interface style: In interface design, we adhere to a consistent style, making it easier for users to understand and operate.

3). Clear classification of functions: In interface design, we have classified functions to enable users to quickly find the required functions.

4). Simple operation process: In the interface design, we have simplified the operation process as much as possible and reduced the user's operation steps.

3.2. Interface design rendering

The following figure shows the rendering of the interface design scheme proposed in this article:

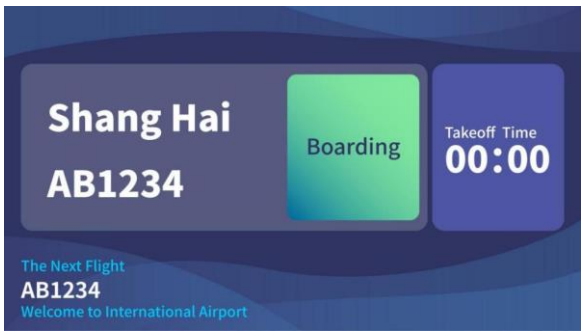

Figure 1. System main interface renderings

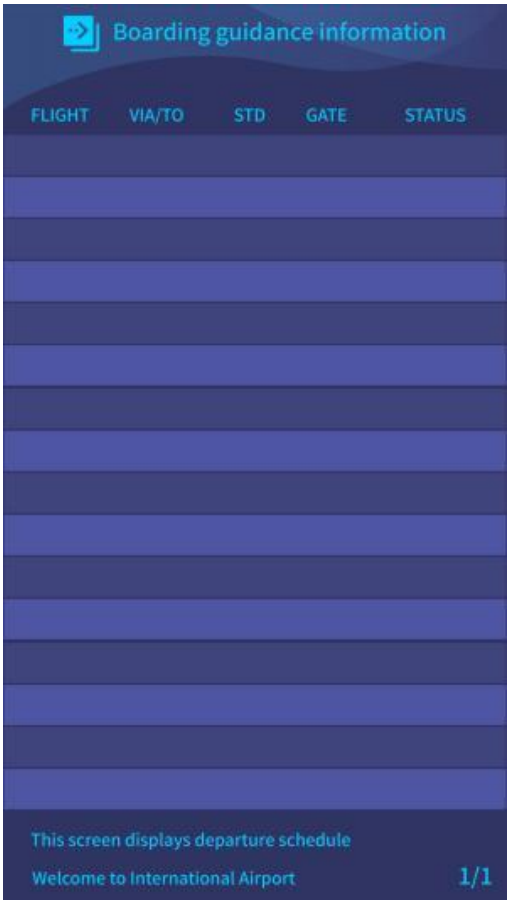

Figure 2. The system displays the interface effect diagram

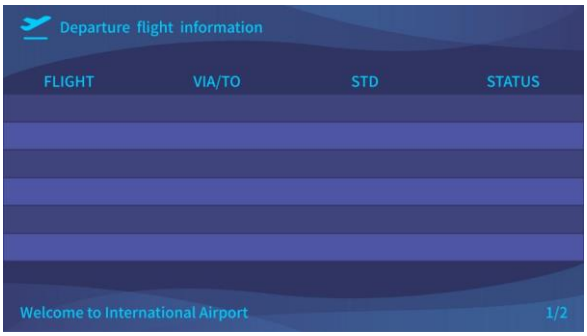

Figure 3. System information interface renderings

From the figure, it can be seen that the interface design scheme proposed in this article has been optimized in terms of concise and clear interface, consistent style, clear functional classification, and simple operation process, which can improve the user experience and operational efficiency.

4. Interface implementation plan

4.1. Implement technology selection

This article adopts front-end technology to implement interface design solutions, including:

1). HTML: Used to write the structure of web pages.

2). CSS: The style used to write web pages.

3). JavaScript: Used for web page interaction and dynamic effects.

4.2. Interface implementation rendering

The following figure shows the interface effect of the front-end technology used in this article:

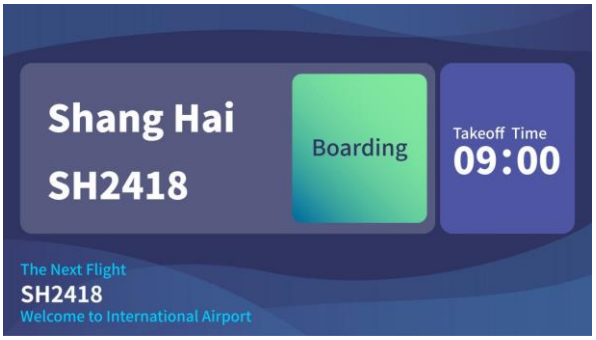

Figure 4. System main interface

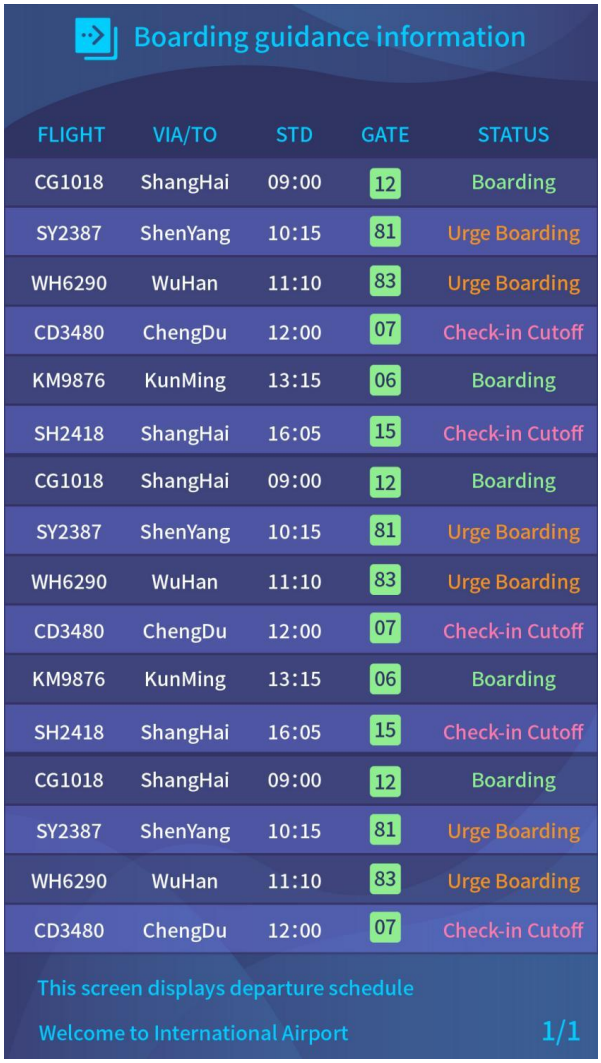

Figure 5. System display interface

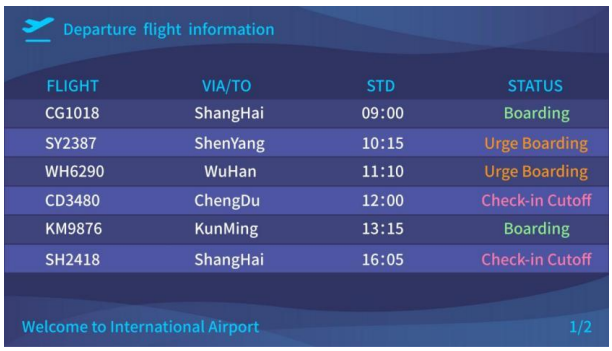

Figure 6. System information display interface

From the figure, it can be seen that the interface effect achieved using front-end technology is similar to the design scheme, which can effectively improve the user experience and operational efficiency.

5. Experimental verification and result analysis

In order to verify the effectiveness of the interface design and implementation scheme proposed in this article, experimental verification was conducted. The experimental results show that the interface design and implementation scheme proposed in this article can effectively improve the user experience and operational efficiency.

The specific experimental process is as follows:

1). Select 20 users for testing and evaluate their user experience and operational efficiency.

2.) Conduct two tests on users, recording their operating time, error rate, and satisfaction indicators.

3). Analyze the data and draw conclusions.

The experimental results are as follows:

1). Operation time: Users who adopt the interface design and implementation scheme proposed in this article have significantly better operation time than traditional schemes.

2). Error rate: Users who adopt the interface design and implementation solutions proposed in this article have significantly better error rates than traditional solutions.

3). Satisfaction: Users who adopt the interface design and implementation solutions proposed in this article have significantly better satisfaction than traditional solutions.

Based on the above three indicators, it can be concluded that the interface design and implementation scheme proposed in this article can effectively improve the user experience and operational efficiency.

References

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