

Construction and Application of Civil Aviation Airport Police Work Cloud Platform

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Keywords: Civil aviation airport, Establishment of police work cloud platform, GIS, System design, System implementation

Abstract: The actual demand of civil aviation airport is the starting point of design. Using advanced and mature technology, a comprehensive, high-quality and efficient secondary alarm system is designed. The system mainly includes: communication command and dispatch system, access police system and computer. Auxiliary dispatching system, GIS police electronic geographic information system, large database and other subsystems, aim to fully meet the business needs of the integrated police, integrate the functions of playing, preventing, managing, controlling, etc. Seamless integration to support the query, storage and management of multiple types of information. The purpose of the system is to centrally accept and specialize the various alarms received, and use the system's GIS and other functions to dispatch various police and medical, health and other related forces, so as to achieve the most scientific and efficient access police. It plays a more important role in handling major cases across the region, handling major mass incidents and emergencies, supporting comprehensive information sharing intelligent decision-making, and dispatching police forces to participate in natural disasters and disaster relief.

1. Introduction

In the face of increasingly large and complex security and business guidance tasks, the Airport Public Security Bureau strives to simultaneously promote informationization and modernization, fully relying on and utilizing advanced computer, communication, geographic information, multimedia, automation and other high-tech technologies. Optimize the secondary police system of the Airport Public Security Bureau to comprehensively improve the multi-faceted capabilities of the Airport Public Security Bureau in the early stage of prevention, adequate preparation, rapid response, and reasonable disposal in the modern airport environment; Science and technology must be vigilant, and management should be efficient, and a more rigorous and faster peripheral security barrier should be established around the airport transportation business [1].

Compared with the previous generation system, the new generation of airport public security bureau's secondary access police system is more powerful. Firstly, it can perform corresponding statistics, analysis and comparison according to different time, location, location and time of receiving police [2]. Secondly, it is possible to publish various forms of information on the processing results, such as the form of graphics, the form of tables, the form of geographic information, etc. Third, it can display single query, comprehensive query, single statistical analysis, and synthesis in multiple ways. Statistical analysis and other information, and has the function of printing. Therefore, from a macro perspective, it has advantages in terms of advancement, reliability, security, confidentiality, flexibility, and scalability. Microscopically, it has unparalleled superiority in many aspects such as police ability and rapid positioning.

2. Civil Aviation Airport Police System Construction

2.1 System Design Objectives

With the expansion of civil aviation airports and the daily increase in passenger traffic, the Airport Public Security Bureau requested that 110, 119, 122 alarms within the jurisdiction be

connected to the command center, gradually replacing the existing 8666110 alarm special service number. On the basis of fully considering the business needs of the Airport Public Security Bureau, this program makes full use of modern communication and computer network technology, and plans to construct the Airport Public Security Bureau Command Center into a domestically leading application technology level in line with the domestic technology development trend. Automatic police system. In summary, the construction goals of the system can be summarized as "four centers", namely, police, decision-making, scheduling and information centers [3].

2.2 System framework

The system adopts the B/S system architecture and the J2EE technology, which initially realizes the transformation of the traditional alarm police to the networked alarm. Specifically, as shown in Figure 1.

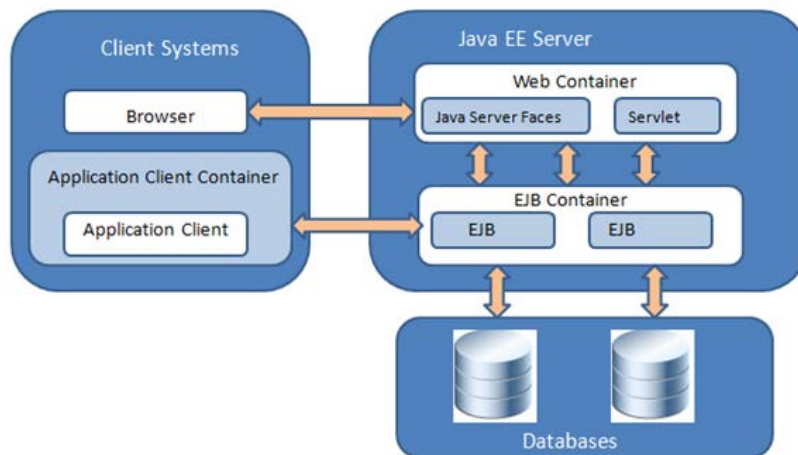


Figure 1. J2EE framework diagram

The basic idea of system design is to develop an extensible system based on the underlying layer, and then add various functional modules as needed on this basic platform. In this way, if a department needs new business processes or needs to implement new functions due to business changes, write sub-function modules, and then simply add them [4]. If a function is outdated, it can be easily deleted. This can be a real-time, highly targeted and practical system, which is convenient for secondary development, maintenance and upgrade of the system. The structure of the system is as follows:

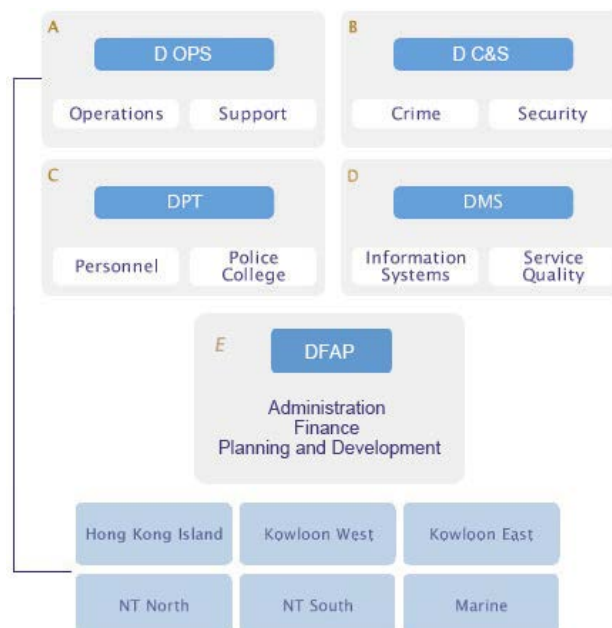


Figure 2. System Hierarchy Design

2.3 Database design process and ideas

The alarm list information table mainly reflects the status information when the case is received, so that the public security personnel can view all kinds of data when the case is received, and the case involves the police. The attributes include the alarm number, the associated alarm number, the alarm mode code, the alarm type code, the alarm type processing type code, the alarm list status, the alarm list save time, the alarm ticket arrival time, the alarm list acceptance time, the data update time, The police number and the employee number. The main code is the number of the alarm ticket, because each alarm ticket has a specific number, which is convenient for the airport public security to manage each alarm ticket, and conveniently and quickly call the data in the table. The external code of the watch is the number of the police officer and the number of the police station. The police officer is the airport police [5]. The specific information in the police list is the employee who receives the police. The data in the form needs to be checked. The data can be directly sent to the airport police information table. The police order is the document for handling the relevant case. The police card is mainly used to describe the relevant situation of the case, and it can well understand the relevant progress of the case.

Table 1. Received police information sheet

Attribute name	Description	Data type	PK/FK	Constraint
Airport Cpno	Alarm ticket number	Int (10)	PK	Not null
Airport Cpwd	Associated alarm number	Char (30)		
Airport Cpwno	Alarm mode code	Char (20)		Not null
Airport Cpino	Alarm category code	Char (10)		Not null
Airport Cporn	Alarm ticket processing type code	Char (20)		Not null
Airport Cplpst	Alarm status	Char (20)		Not null
Airport Cpctime	Received police order save time	Date		Not null
Airport Cpr time	Arrival time	Date		Not null
Airport Cpd time	Receive the police receipt time	Date		Not null
Airport Cpdre	Data update time	Date		
Airport Conlpid	Police order number	Varchar (80)	FK	Not null
Airport Cplno	Alarm employee number	Int (1000)	FK	Not null

The airport police information table mainly reflects all kinds of information of the airport police, which is convenient for the airport to manage each police, achieve efficient management and deployment, and improve the processing efficiency of the case. The table attributes include the airport police number, the airport police name, the airport police ID number, the airport police mobile number, and the number of the police station [6]. The main code of the form is the airport police number. Each police officer has its own specific number to facilitate identification. The external code of the form is the number of the police station to which the police belong. Each police officer has its own police station, and each police station manages a certain number of civilian police. Therefore, the police station number of the police station in the airport police information table is the main code in the information table of the police station.

Table 2. Design of case information table

Attribute name	Description	Data type	PK/FK	Constraint
Airport Cpthno	Case number	Char (30)	PK	Not null
Airport Cptadd	Case address	Char (50)		Not null
Airport Cptcr	Case content	Char (500)		Not null
Airport Ctoid	Alarm person ID number	Char (10)	FK	Not null
Airport Cpttno	Case category number	Char (20)		
Airport Cplpno	Case number	Varchar (20)	FK	Not null
Airport Cplpid	Alarm ticket number	Int (1000)	FK	Not null

The case information table mainly records the relevant information of the case. At the same time, this form is also a very important table in the whole system. Because the case information is an important clue for the case detection, the attributes in the table mainly include the case number, the address of the case, and the content of the case, The ID number of the alarm person, the case type number, the case number of the police station, and the number of the alarm number. The case number is the main code, and each case has its number, which is used to distinguish the information of different cases. At the same time, the external code in the case information table is the ID number of the alarm person, the number of the case receiving the police station, and the number of the alarm number. The external code refers to the main code of the alarm person information table, the police station information table, and the alarm list information table [7]. In the process of detecting the case, the connection between the table and the table is performed to achieve efficient cracking of the case.

3. Police work cloud platform design and implementation

3.1 System Development Environment

The hardware platform includes communication servers, switches, CTI servers, agent devices, remote access servers, and application servers. Communication server: as a server for information communication; switch: DS-300N2 queuing scheduling switch, DS300N2 has standard CTI interface (CSTA) protocol, with external and internal ACD functions, can realize three functions of queuing, switching and conference scheduling; CTI server: CTI The server is connected to the DS-300N2 queuing dispatching switch to control the operation of the agent computer. The agent device: each agent is composed of a computer and a voice phone for voice calls; the application server: completes the link between the system and multiple data sources, and completes the pair at the same time. Access to business data; remote access server: The remote access server is used for remote maintenance of the system.

The system software platform includes the development of IED, WEB application server, database management system, system development software and call management system. The development IDE is My Eclipse WEB application server is Apache Tomcat 5.0, the database management system is Oracle 11g, the system development language is J2EE, JSP and JAVASERVLE; the call management system provides graphical analysis and generates relevant statistical data.

3.2 System Hierarchy

In order to make the structure of the system clearer and clearer, this paper divides the system hierarchically, as shown in Figure 3. The system equipment layer mainly includes software and hardware facilities such as DS300N2 queue switch, telephone data interface, recording equipment, wireless communication equipment, GIS server, GPS server, road traffic information server, and peripheral equipment management system. The system service layer is responsible for coordinating the work of the system. It consists of various management software and service software, including: police call management, GIS, database, public security information server, and peripheral equipment management system.

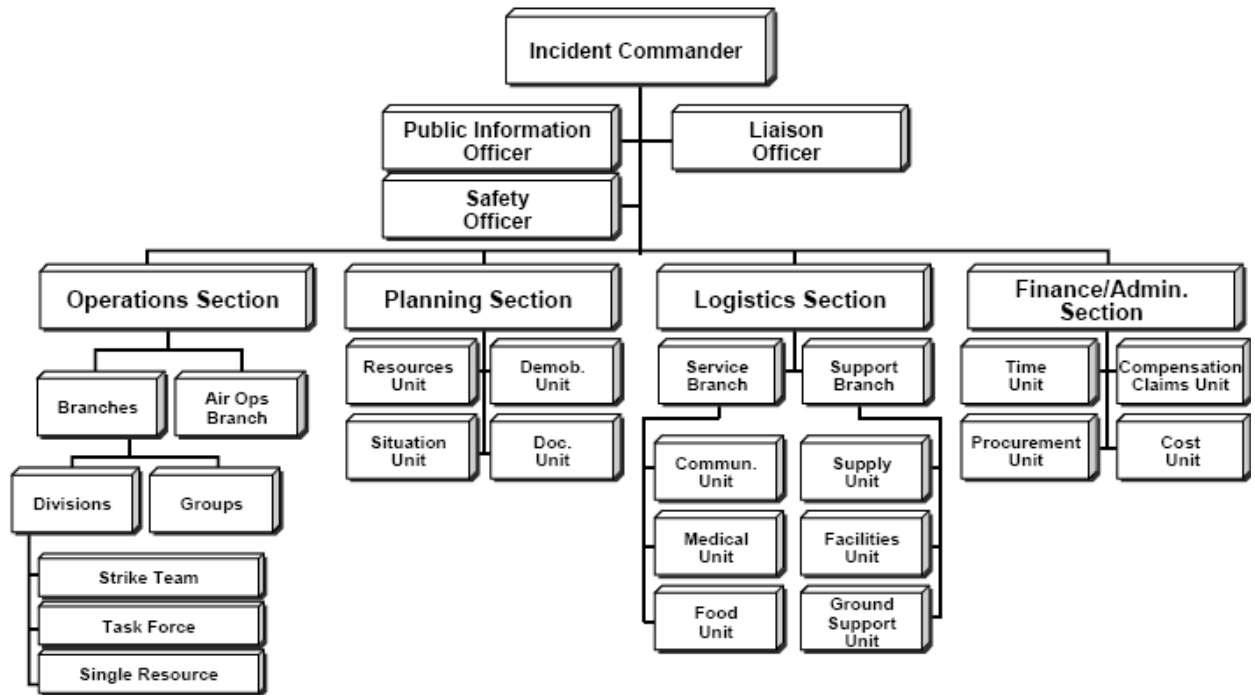


Figure 3. Police work cloud platform structure

3.3 System function implementation

The secondary junction alarm subsystem is a separate alarm system that can be used separately. The secondary junction police subsystem serves as a continuation of the regional police system and completes the police station issued by the airport command center. At the same time, the secondary junction police subsystem has multiple functions such as alarm, police feedback, information inquiry, data statistics, and recording query.

The squad leader is a full-featured police seat with advanced privileges. It is configured as a dual screen. The first screen is used to display the text information interface, and the second screen is used to display the GIS information interface. In addition to the full function of the central police module, the squad leader also has the function of the squad leader management module, which can supervise and control the police seats of each terminal. The main functions are: agent management monitoring, job performance evaluation, squad leader duty log [8].

The GIS electronic map subsystem uses the powerful support of the electronic computer network system to collect, store, retrieve, analyze and display the geographical environment information, realizing the perfect combination of map and data, which is the intersection of geography science, information science and computer science. Subject. GIS has the function of processing various kinds of information. These data are organized into a geodatabase according to the organization principle and technology of the database, which constitutes the core part of the system. Geographic information system can visually display the position and status of all moving targets and fixed targets in the form of maps, charts, tables, etc., and GIS electronic maps are expressed by means of maps, which are widely used in various social and economic construction. Industry, has a very broad application prospects in the field of public security. Specifically, the electronic map system has the following main functions: simulation analysis results, emergency rescue intelligent decision-making, and emergency rescue dynamic deployment.

4. System test

Combined with the above basic research ideas, this paper takes an airport as an example and carries out the research and development of its comprehensive information platform for safety dispatching, as shown in Figure 4. The integrated information integration system is based on the B / S architecture and middleware technology architecture to achieve centralized management of

services and data, reducing system maintenance and upgrade costs. The use of EJB to encapsulate business logic enables separation of content presentation (graphical interface) and business logic (business processes), as well as business logic and data storage. In this way, according to the needs of the system and the scale of the business, the information system can be easily and quickly set up to realize specific services, and the system has better performance in terms of security and reusability.

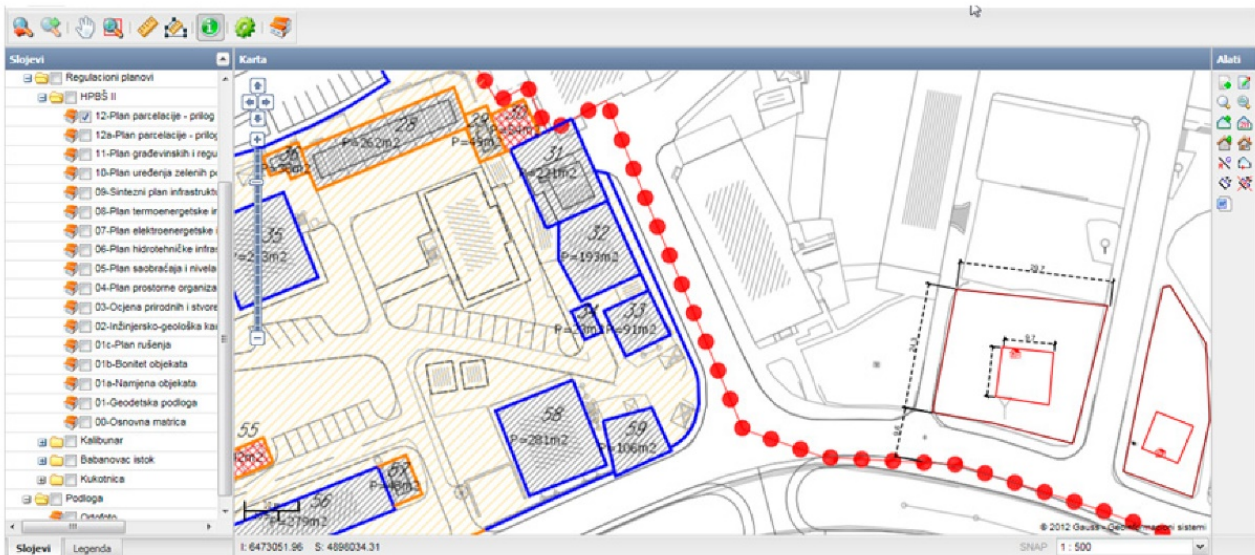


Figure 4. System test interface diagram

5. Conclusion

This paper mainly studies the technical basis of the police system, carries out the demand analysis and design, and on this basis introduces the system design and implementation of the airport police system's new generation airport public security bureau. It can be seen from the foregoing discussion that the connection police system can perform statistics, analysis and comparison according to different time and place, alarm type, weather conditions, police situation, etc., and can accurately count and analyze the number and duration of docking alarms. And the comparison, for the results obtained can be used in a variety of new releases such as graphical forms, tabular forms, and geographic information. At the same time, single-item query, comprehensive query, single-statistical analysis and comprehensive statistical analysis of each data can be displayed or printed in various ways such as forms and graphs; and statistics and analysis results can be queried according to the authority. The civil aviation airport police work platform has outstanding advantages in many details such as the ability to receive police and rapid positioning. At the same time, the design process strictly abides by the "Golden Shield Project" specifications and has targeted design for different types of cases. The content of the police unit has been refined, leaving enough room for expansion of the system for subsequent expansion and improvement.

Acknowledgements

This work was supported by Public Security Theory and Soft Science Research Program of the Ministry of Public Security: Research on the Innovation of Police Professional Education in the Airspace under International Comparison (Project No. 2019LLYJTJXY059).

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