The efficiency range of conventional image recognition is 10-30 frames per second. According to Figure 7, due to the influence of light and complex environment, the system in this paper presents different recognition efficiency when it is used to recognize 500 face images with different light. When the light of the face image is normal light, the recognition efficiency is 30-32 frames per second, which is higher than the conventional image recognition efficiency; When the light of the face image is strong light, the recognition efficiency is 28-30 frames per second through the system in this paper; When the light of the face image is weak, the recognition efficiency is 27-29 frames per second. Therefore, the recognition efficiency of the system in this paper is hardly affected by light when it is used to recognize face images with different light. The recognition efficiency can still reach more than 27 frames per second when the image light is weak. The system in this paper has high efficiency for face recognition.

3.3 Passenger identification at different windows

When the system runs for 100 minutes, the results of identifying the identity of civil aviation security check passengers at different windows such as security check port 1, 2, and 3 are shown in Table 3.

From the experimental results in Table 3, it can be seen that the identity of civil aviation security check passengers can be accurately identified within 100 minutes of the system running. Only one case of civil aviation security check passenger identity identification error occurred in window 2. Table 3 experimental results verify that the system can effectively identify the identity of civil aviation security check passengers, and has high identification accuracy in the actual identification of civil aviation security check passengers. The identification accuracy of civil aviation security check passengers in this system is high, which can be applied to the practical application of civil aviation security check and improve the service level of civil aviation security check.

4. Discussion

A civil aviation security check passenger identity recognition system based on residual convolution network is designed to provide technical support for the identification of civil aviation security check passengers. Through experiments, it is verified that the system can realize accurate identification of civil aviation passengers and has high applicability. The airport security inspection system is one of the important systems of the airport security inspection department. It provides a comprehensive, safe, accurate, convenient and reliable solution for the airport security inspection, is conducive to improving the security inspection service and management level, and provides an effective information management platform for the airport security inspection. Therefore, the research and development of the airport security inspection system is an arduous and significant task.

1. Improve the comprehensiveness, accuracy and reliability of airport safety information data

The airport security inspection system makes comprehensive use of computer network technology, multimedia technology, video monitoring technology, facial feature recognition technology, second-generation ID card information identification and extraction technology, public security control information data extraction and other technologies to track and store passengers' entry and exit customs clearance through the computer and the airport internal LAN, and process the image and video information of passengers and their luggage. The original information is stored in the database, which can be comprehensively, accurately and

Table 3. Identification results of passengers in civil aviation security check

Time/ min	Security checkpoint 1/N		Security checkpoint 2/N		Security checkpoint 3/N	
	Actual number of passengers	Identify the number of passengers	Actual number of passengers	Identify the number of passengers	Actual number of passengers	Identify the number of passengers
10	185	185	165	165	181	181
20	254	254	285	285	305	305
30	394	394	384	384	415	415
40	485	485	506	506	528	528
50	586	586	615	615	635	635
60	678	678	735	735	728	728
70	718	718	865	865	846	846
80	925	925	975	975	934	934
90	1035	1035	1053	1053	1035	1035
100	1165	1165	1265	1264	1286	1286

reliably provided to the decision-making level to deal with safety emergencies at any time, and can be used as reliable evidence for the investigation of safety accidents.

2. Upgrade traditional security inspection methods to improve security inspection efficiency and prevention capacity

The traditional means of using X-ray machine for manual operation in security inspection makes the security inspection staff have high labor intensity, low efficiency, easy to make mistakes, and also affects the quality and service level of security inspection. Research on automatic and information-based security inspection system can improve the ability to prevent aviation safety hazards.

3. Provide interfaces with other relevant business systems to make management more efficient and fast

The data interface interacts with external systems to realize the integration of airport applications. According to the actual situation of the airport, appropriate adjustments and modifications can be made to adapt to the actual needs of the airport business, so as to share information resources among various business systems.

5. Conclusion

This paper put forward a new design of civil aviation security check passenger identity recognition system. The system integrates face recognition and RFID recognition and data transmission technology, and introduces ReID recognition and location tracking technology to solve the problems of poor face recognition effect and low inspection experience caused by frequent machine passwords in the actual application of the security check system, and realizes the rapid binding of the image information of passengers, baggage and X-ray machine during the security check process, and forming a senseless security inspection mode. By applying the system to an airport, the high accuracy and efficiency of the identification designed by the system are verified, and the intelligent level of the airport security inspection system is improved, which plays a reference and promotion role for the research and landing of intelligent security inspection.

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