

Design and Implementation of Child Missing Registration and Mutual Aid Mini Program Based on Java

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Abstract: With the rapid development of the internet, information dissemination has become faster, which makes it even more important to expedite the handling of child missing cases across the country. In this paper, a missing child registration and mutual aid mini program based on Java was designed and developed. The mini program can record various information about missing children and publicize their basic information. More importantly, it can share information with local public security systems. In the age of information technology, people can make better use of this mini program to participate in the search for missing children and improve the success rate of search operations, bringing positive impacts to families and society.

1. Introduction

Children are an integral component of the family unit, serving as a vital link in sustaining marital relationships and fostering emotional intimacy between family members. Within the household, they embody the essence of stability and possess the unique ability to foster familial cohesion. Additionally, children represent the promise of a brighter future for their families and nation, serving as the inheritor of their respective cultural and societal values and a treasured resource for their country. It is, therefore, paramount that we offer children a healthy and safe environment in which to grow and develop, fostering their intellectual curiosity, innovative spirit, and practical aptitude. Nevertheless, children's inherent vulnerability renders them susceptible to victimization by malevolent forces, precipitating a devastating loss for their families and imposing a severe toll on society's physical and human resources [1,2]. As the world's most populous country, China's recent decision to relax the two-child family policy is anticipated to bring about a gradual increase in the number of children. Yet, regrettably, cases of missing children have also been on the rise, with instances of children getting lost or disorientated, falling into wells or ponds, or worse still, being abducted by human traffickers.

The current mechanism in our country still has a long way to go. To enhance the existing system, it is possible to strengthen the connections among industries such as communication and the internet, and jointly build an "official information-sharing standardization platform" [3-5]. Additionally, leveraging big data technology to collect and analyze any relevant information pertaining to missing children can facilitate preventive measures and control measures [6-8].

The system development for this platform is based on Java, MySQL, and SSM (Spring+SpringMVC+Mybatis) technology and employs web technology such as HTML, CSS and JSP for displaying the front-end pages. The front-end mainly consists of modules for pre-filling child information, quick reporting, case management, and new clue notifications. The back-end modules primarily involve managing personnel overseeing feedback from families on missing-child information and administering the information regarding missing children. Commonly used tools such as IntelliJ IDEA, Tomcat, SQLyog, and Dreamweaver are employed to develop this system, with the main technology employed being SSM and MySQL.

2. Overall Design of System

The developed WeChat mini program for child missing registration platform is designed to meet the urgent needs of registering and reporting missing child information [9,10]. Through the analysis of missing child information, the functions of the mini program have been determined. We learned the development technology of WeChat mini programs and designed the user interface of the mini program that combines the functions of child information registration backup, timely clue notification, and other features. This reduces the time required for registration and reporting, making it easier for families and volunteers to quickly obtain relevant information about missing children. The overall process is shown in Figure 1.

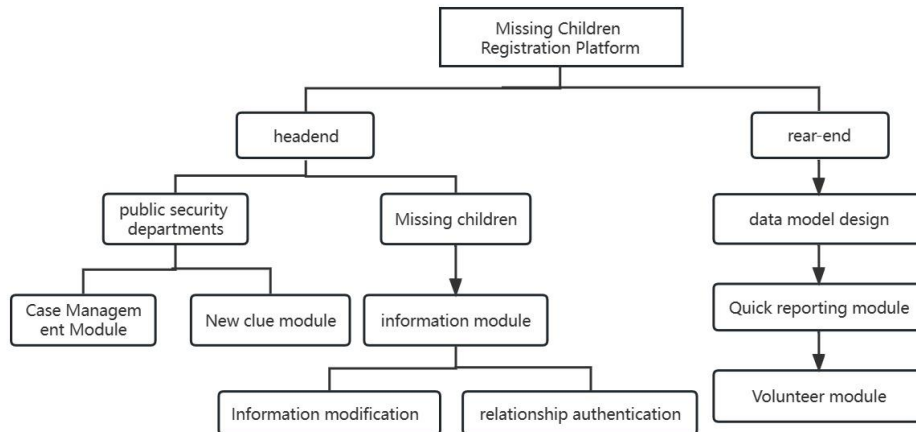


Figure 1: Design of the Child Missing Registration Platform

To implement the Child Missing Registration Platform mini program, the following steps need to be taken:

a. User Interface (UI) Design: Developers must design pages for registration, login, child information registration, case management, and volunteer information release, while ensuring that the interface is simple and easy to use.

b. Database Design: Developers need to design a robust database structure, including data classification for child basic information, family and volunteer information, case information, and search progress, to ensure efficient data storage and queries.

c. System Development: Core technologies include user authentication, data storage, search record queries, message notifications, and integration with the Amap API.

d. Testing and Deployment: Upon completion of development, comprehensive testing is necessary to ensure the stability, security, and usability of the mini program. Subsequently, the mini program should be published in the respective application market to promote societal adoption.

In summary, the realization of the Child Missing Registration Platform mini-program

necessitates proper UI design, efficient database architecture, and business logic code to ensure system stability and user-friendliness. Likewise, comprehensive testing is essential, and technical support should be provided to users as necessary.

3. System Implementation

(1) Search Home Page: On this page, child guardians may choose to click on the missing child information or successful case columns to view relevant content. Additionally, the platform offers a message subscription feature where users can subscribe to platform messages.

(2) Police System Module: The police system module is linked to the local police station, where office workers can view various case information on the case management interface, such as case time and case closure status, and provide relevant opinions and views. Guardians can update and complete missing child information in real-time through the case management interface, ensuring timely information and facilitating increased success rates in volunteer searches. Once the missing child is found, the guardian can click on the case closure button to perform closure operations.

(3) Rapid Registration Module: If the guardian discovers that a child goes missing, they will enter the rapid registration interface. After rapid registration, the case will be automatically generated and sent to the volunteer end. Afterwards, an information supplementation phase begins, where guardians can continue to fill in additional information about the missing child. In the rapid reporting interface, the mini program will obtain the current time and location, and guardians can choose to select the missing child information entered previously or fill in new information. At this time, the system requires guardians to provide the child's ID card information to prevent illegal activities such as impersonation by criminals.

(4) Pre-Filled Child Information Module can assist guardians in adding detailed information about the child before going missing. After pre-filling, guardians can see a brief listing of the missing child's information on the missing child list interface. Additionally, this interface can classify whether the child has self-awareness or not, facilitating assessment of the difficulty of subsequent search stages.

The Pre-Filled Child Information Module is shown in Figure 2.

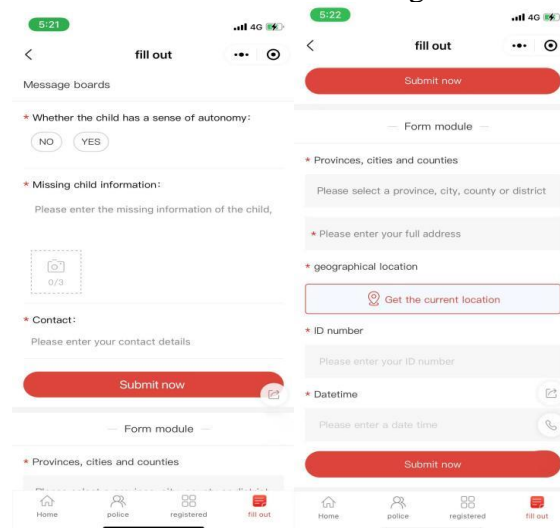


Figure 2: Information filling interface

To report a missing child, users can open the WeChat mini-program and click on the “Information Registration” icon on the bottom navigation bar, where they can select whether the child has self-awareness and fill in the child's personal information. When uploading photos, it is

recommended to upload front-facing or ID card photos, and ensure that all information and photos are accurate before clicking “Confirm and Submit”. For the missing child’s location, users can manually enter the location information or automatically obtain the current location. After completing the upload task, users must wait for the police system platform to review the results.

4. Conclusions

The Child Missing Registration Platform, based on Java programming, has been designed and developed to address the issue of high rates of missing children, difficulty in searching, and low success rates in finding missing children in China’s digital age. This platform utilizes the MySQL database for information storage and the SSM framework for backend development, establishing an effective, convenient, and simple child missing registration platform. The platform targets a wide range of users, including missing child families, social volunteers, and police system administrators, and effectively speeds up the accuracy and efficiency of missing child information feedback. As the database and user numbers continuously expand, the system’s success rate in finding missing children will continue to increase.

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