

## Anxingbao App Helps Older People Travel Safely

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### Abstract

**According to the data of the seventh national census in 2020, the population aged 60 and above in China reached 264 million, accounting for 18.70% of the total population, of which 190 million were aged 65 and above, accounting for 13.50% of the total population. In recent years, traffic accidents have become an important factor in accidental casualties among the elderly, posing a great threat to their physical, mental and safety.**

### Keywords

**Intelligent Transport; Travel; Elderly People.**

### 1. Introduction

According to the "Outline for Building a Strong Transportation Country", by the middle of the 21st century, China will become a transportation power in an all-round way. Smart transportation will be a key construction area guided by the government. As a country with a large population, coupled with rapid economic development, China's road traffic demand is strong. China's smart transportation industry will usher in a period of rapid development, and gradually move towards integrated development, system construction, security and security. Standardization construction will be gradually improved.

My country is focusing on building one of the major socialist modernization powers in the smart transportation industry. The development of China's smart transportation industry has a relatively short start, and has experienced the evolution from intelligent transportation to smart transportation. It can be summarized as the following three development stages:

- 1) From the last century to 2007, my country has successively carried out research on the development of intelligent transportation systems (ITS), focusing on the government and pilot demonstration of key technologies of intelligent transportation;
- 2) From 2008 to 2011, smart city was first proposed in China and attracted attention, and smart transportation, as a key part of smart city, also attracted research interest from all walks of life;
- 3) From 2012 till now, take smart transportation as one of the key construction contents of the national transportation industry.

With the development of society, many new forms of transportation have emerged in China. However, the current situation of traffic safety prevention and control is complex and changeable, and the aging of the social population is aggravating. Traffic safety management is faced with both "foreign and internal worries".

There are clear laws and regulations on road safety issues, due to the ineffective implementation of system regulations, irregular driving behavior, some drivers' self-safety protection awareness, driver fatigue driving, visual errors, violations of laws and regulations, etc., resulting in frequent road accidents. People encounter car accidents, especially for the elderly who walk alone. Due to their high age, various physical functions have declined, and their response to traffic and road problems is low. Speeding vehicles on the road are a threat to their personal safety. There are often tragic accidents involving elderly people who walk alone.

Due to the existence of the above problems, traffic accidents have become an important factor in the accidental casualties of the elderly in recent years, posing a huge threat to the physical, mental and safety of the elderly.

## **2. Analysis of the Research Status at Home and Abroad**

### **2.1. Current Status of Foreign Research**

The aging population of developed countries in Europe and the United States is relatively serious, and rich practical experience has been accumulated for a long time. The United States is one of the countries that pays more attention to the problem of elderly transportation. Through exploration, a relatively complete set of countermeasures has been established, involving planning, construction, operation, management and legislation. The experience is worth learning from.

The United States pays attention to playing a policy-oriented role in solving the transportation problem of the elderly, and protects the transportation rights and interests of the elderly through various means such as legislation, academic seminars, and compilation of guidelines. For example, the 1990 Act clarified that transportation is a relatively important part of civil rights, and that bus and rail facilities must provide the necessary conditions for disabled people to use them. States were required in 1992 to dedicate a significant percentage of funding to senior transportation.

In terms of specific transportation countermeasures, the United States has implemented various policies to improve the coverage rate and frequency of bus services and improve bus operation in response to many problems such as low bus service level, low coverage rate, far stations, poor accessibility, and insufficient publicity. efficiency and reliability. At the same time, through various media, go deep into senior centers and various senior service facilities, publicize bus routes and usage methods to the elderly, and encourage test rides. In terms of improving the driving safety of elderly drivers, the United States has set up special training courses and test content for elderly drivers, and the training time is also longer.

### **2.2. Domestic Research Status**

The aging population has put forward new demands on China's urban transportation system. On the basis of summarizing the travel characteristics of the elderly, this paper analyzes the problems existing in the existing transportation system in terms of accessibility, reliability and comfort of public transportation, walking environment, information sources, and barrier-free design. Corresponding countermeasures and suggestions are also put forward from the development of public transportation, the construction of barrier-free facilities, the improvement of walking environment, the education of the elderly's safety awareness, and the improvement of driver training and inspection systems. For example, various methods of safety publicity and education for the elderly are provided offline, community publicity, walking into outdoor activity squares, and pavement persuasion to improve the safety awareness of the elderly. Regular training and frequent assessments are carried out for drivers to regulate their driving.

My country's traffic safety protection for the elderly has long been passive protection, and the state and society have invested a lot of power to provide a good travel environment for the elderly. It is not impossible for the elderly to actively protect their travel safety, and they can actively participate in safe travel with the help of application products.

However, the current domestic research on traffic safety mainly focuses on vehicle anti-collision warning, but this aspect is still in the research stage, and there are few practical application products. At the same time, due to the lack of research on the safety protection

mechanism for special groups such as the elderly alone, the safety precautions for the elderly alone in car accidents have little effect.

### **3. Main Content**

#### **3.1. Develop Targeted Application Software**

In order to improve the safety factor of the whole people, especially the elderly alone, and prevent the occurrence of traffic accidents more effectively, the team developed the Anxingbao APP to provide drivers with road safety reminder information. At the same time, for the elderly alone, it can provide more targeted protection of their personal safety and effectively reduce traffic accidents. Anxingbao APP takes the Internet as the carrier and the elderly and drivers as the specific service objects, innovatively launches road safety warning software, builds a road safety system to protect the elderly and drivers, contributes to the intelligent transportation industry, and further develops "new infrastructure" important role.

#### **3.2. Feasibility Analysis on the Development of Anxingbao APP**

##### **3.2.1. Market Analysis**

Since 2015, the government has successively issued relevant policies to guide the development of the industry. With China's modernization process, the rapid development of the intelligent transportation industry and the deepening of the aging population, Anxingbao APP matches the needs of the modern elderly population, and there is a huge market.

##### **3.2.2. Technical Analysis**

Based on the programming specification of Java language, Android development technology and Servlet server technology, Anxingbao APP adopts client/server architecture (C/S), uses Android studio software platform that supports Android SDK, designs UI interface, obtains user input, and sends user request, and develop Servlet server technology on this basis, get data or request from the client, and store the data in the database or return it to the client from the database.

##### **3.2.3. Functional Analysis**

###### **1) Positioning**

The app uses a combination of GPS and Wi-Fi signals to provide users with greater positioning accuracy. When the App sends a request to the Location SDK, the SDK will locate the user based on the actual location factor.

###### **2) Voice broadcast**

The app provides users with three reminder methods: beep, voice announcement and vibration, allowing users to choose their preferred reminder method to remind them of upcoming traffic conditions and information, avoiding prompting due to mobile phones or other devices loaded with the same type of App. Insufficient traffic accidents caused by the safety hazards to a minimum.

###### **3) Navigation**

The app provides access to the national road network data stored in the database and map data provided by Baidu Maps, and updates the road conditions from the departure point to the destination in real time according to the user's needs.

###### **4) Overspeed alarm**

If the actual speed of the vehicle is greater than the speed limit of the road, the APP will warn the user that the current speed has exceeded, please slow down.

###### **5) One-sided warning**

When both the driver and the elderly living alone are within the same range, the APP will obtain their location information and plan a safe range. When the driver enters a distance of 500 meters from the elderly living alone, the APP will remind the driver with voice that there is an elderly living alone on the road ahead, and the driver should slow down.

#### 6) Road failure warning

When a road accident occurs suddenly in a certain place, the Anxingbao APP uploads and stores the feedback data in the database after receiving and sorting out the feedback data. The Anxingbao APP will remind the driver of a certain failure on a certain road, and provide the driver with an alternative route to choose the best alternative route.

#### 7) Adaptability of smart devices

The APP and other smart terminal products have been adjusted accordingly. We have adjusted the existing and mature smart terminal products to monitor the user's physical condition while driving.

### 3.2.4. Project Features

Our team uses the concept of network technology, faces the field of intelligent transportation, focuses on the development trend of the Internet of Vehicles, takes the elderly alone and drivers and passengers as the main research objects, and combines Baidu Maps to consider the characteristics of driving behavior, vehicle movement characteristics, and road operations. The impact of driving safety, a multi-level safety early warning model based on the human-vehicle-road driving problem is proposed; and the Internet of Vehicles technology is applied. Using GPS positioning technology, wireless communication technology, intelligent voice technology, etc., the driver has independently developed a one-way warning application for road driving safety. Its core competitive advantage is that it can define a two-level safety range for the elderly. When the driver's vehicle enters the range, the app will send two-level voice alarm information to the driver according to the range, and one-way remind the driver to pay attention to the current road conditions. Secondly, through the combination with other terminal products (such as smart bracelets), the data obtained by monitoring the driver's heart rate and other physical conditions are used as the basis for judging the driver's behavior. The designated emergency contacts can issue warnings or alarms, so as to build a road safety system that integrates people, vehicles and roads.

## 3.3. Anxingbao APP's Business Philosophy

### 3.3.1. Overall Implementation Plan

Anxingbao APP will go from point to point, from small to large through "three steps", and finally achieve the expected goal.

Step 1: 2022.01 - 2022.06.

2022.01-2022.03, complete the preparatory work for APP industrial and commercial registration, staffing, fund raising, site selection, etc.; prepare for software development, design software framework, conduct in-depth research on user needs, and improve software development technology and background server technology.

2022.04-2022.06, serve the first batch of pilot registered users in Guilin, Guangxi Zhuang Autonomous Region, including the elderly and drivers. Allocate customers, realize one person, one customer service, regularly push communication through online and offline visits, collect feedback on difficulties in using the APP, and immediately summarize the feedback information to the operational customer service to meet the individual needs of customers.

Complete the resource gathering work of all parties of the APP, and carry out external marketing promotion. The main marketing methods are: new media operation promotion, search engine promotion, automobile hardware promotion, offline promotion, application store promotion, advertisement placement promotion, etc. Develop the basic functions of APP,

including real-time positioning, car navigation , speed measurement, etc.; judge the elderly, real-time positioning, and synchronize location information ; obtain more investment and raise development funds.

Step 2 : 2022.07 - 2022.12 \_\_.

popularization to 13 cities in the autonomous region , obtain more user data, continuously collect road safety data, and improve the functions of the APP ; establish a user feedback platform , and set up a special Classification and sub-service departments; adjust mobile APP . Guangxi Zhuang Autonomous Region classifies users into special operation and customer service teams in various regions , and improves the service quality of customer service teams through online and offline training and assessment ; establishes a customer service point system, uploads assessment results, and updates them in real time, linked to performance.

Step 3: 2022.12 - 2023.01.

On the basis of the remarkable achievements in Guangxi Zhuang Autonomous Region, the core points of the project are to select suitable cities across the country for the off-site expansion of business models outside the province, to control the scale of capital outflows, and to maintain a stable growth level of profitability . At this time , the APP cooperates with traditional map APPs, and cooperates with government departments to carry out large-scale development, and has a million-level customer base. Popularize the installation of APPs to the elderly , establish a credit score system , and eliminate bad information . In the national region , each province, autonomous region, and municipality directly under the Central Government will set up regional service departments and call centers, which will be launched on the platform to quickly solve customer problems , complaints, etc., and collect suggestions.

### **3.3.2. Marketing Methods**

1)Through the cooperation with the government transportation department , with the traffic safety supervision qualifications reviewed and approved by the relevant departments , obtain the support of government agencies , and popularize and promote it to the elderly and driver groups.

2)Vehicle hardware promotion . By supporting relevant vehicle-mounted hardware alarm devices , while selling hardware, it guides users to download software along with the APP's instructions . In the entry page of the mobile APP , insert part of the advertising time to introduce the radio column , and the radio station will introduce the mobile APP in a fixed time period every day.

3) Offline promotion . In places with high traffic such as parking lots , use simple posters and distribute small gifts to promote the APP offline.

4)Advertising placement and promotion in local TV channels, daily news, weather forecast and other columns, followed by APP advertising.

5) Advertising placement and promotion, placing APP advertisements after local TV channels, daily news and weather forecasts.

## **3.4. Product Competition Analysis of Anxingbao APP**

### **3.4.1. Competitive Analysis of Traditional Mobile APPs**

Baidu Maps and AutoNavi Maps are the most popular mobile APPs in China , with a huge number of users. At present, this traditional mobile phone APP has a high market share , strong financial strength , advanced technology, expanding development scale, and even provides overseas services . The new phase of competition is likely to target traffic and road safety for older age groups.

### 3.4.2. Competitive Analysis of Emerging APPs

The design and generation of emerging APPs will meet people's differentiated needs. With the emergence of more and more emerging APPs, as our scale continues to expand, there will also be alternatives, and we will face homogeneous competition.

### 3.4.3. Advantage Analysis

1) Compared with the traditional mobile phone map APP, it provides differentiated services for specific groups (drivers, the elderly) and ensures the traffic and road safety of some special groups.

2) In the analysis of competition with emerging APPs, we adhere to the original intention, highlight our own characteristics, and constantly improve our services, so that APPs become an indispensable part of the daily traffic and travel safety of our service groups.

## Author Contributions

QJQ, HYH, DHF were responsible for writing the article, LXL, LLH for building the research idea, and GY, WJ for translating the literature.

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