ANXING
Vehicle Assistant System
Project Profile

Using Intelligent Network

to Protect Drivers

A. Preface

With the rapid growth of the number of cars and the increasing frequency of car-using, the rate of road traffic accidents in China has also increased, and the causes of these accidents are closely related to people's physical condition when driving. In addition, according to the surveys, the market size of Vehicle Networking will grow exponentially in recent years.

Based on the above background and relevant research, our team built the Vehicle Assistant System by using intelligent network, which can monitor the car owner's physical condition in real time, obtain long-term data for personalized analysis, and provide online doctor consulting services to help car owners drive safely and manage their health.

B. Product Introduction

This product is a comprehensive application system to assist drivers to drive safely and manage health. It is composed of vehicle-mounted application, mobile phone application, web-based management system, server-side and vehicle-mounted health detection device.

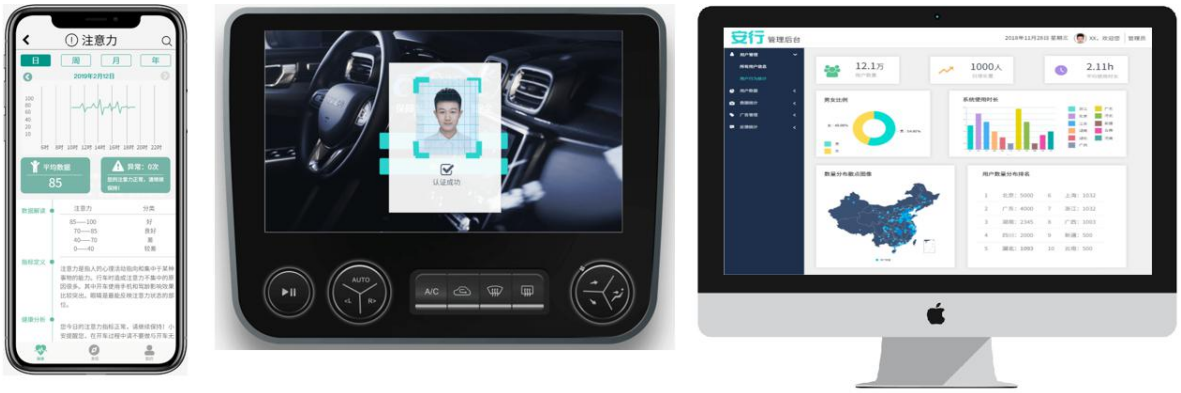

Figure 1. Product Introduction -- Phone App, Vehicle-mounted App, Management System

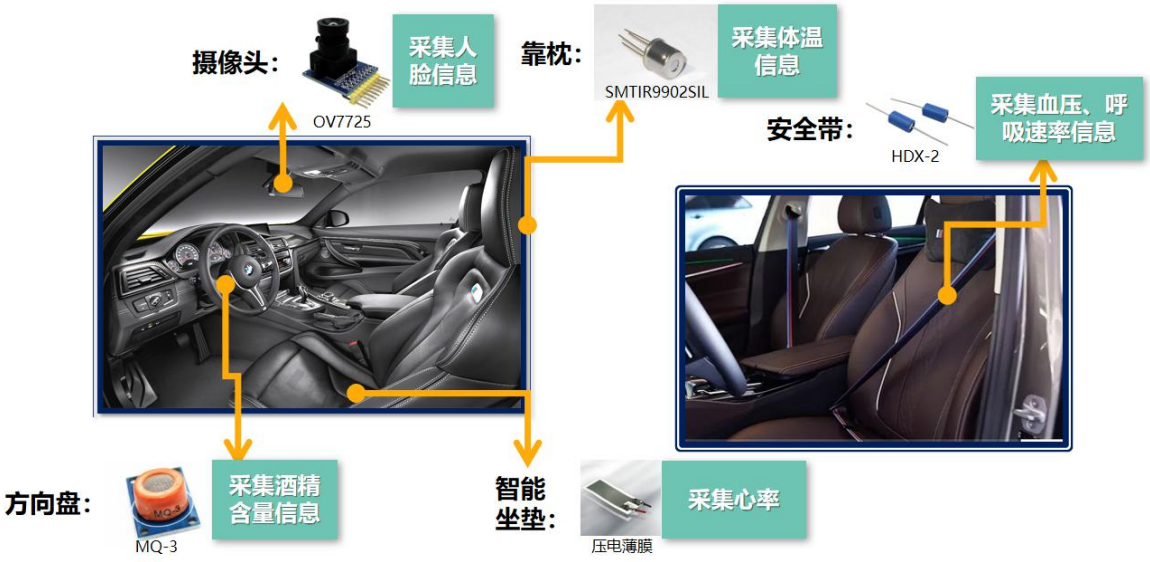

Figure 2. Product Introduction -- Hardware of Vehicle-mounted Health Detection Device

1) Web-side

Display the data contained in the database, manage and analyze the data, and obtain the analysis results of the data including health indicator, users, advertisements, rescue orders and other relevant data.

2) Mobile-side

Mobile Phone Application: For users to view historical health data and analysis results of health indicators. In addition, users can choose to contact private doctors to customize personalized health programs.

Vehicle-mounted Application: Face recognition authentication for users, real-time health indicators monitoring on boarding and driving if authentication is successful; Analysis of detection data, and the longer the detection period, the higher the accuracy rate; In case of emergency, the partner rescue mechanism is activated to improve rescue efficiency.

3) Server-side

Calculation, transmission, storage and backup of data; Statistics of user information, health data, rescue statistics, advertising management, etc.

4) Vehicle-mounted Health Detection Device

The device comprises a processor, a sensor group, a storage module, a wireless transmission module, an input and output module and a power supply module electrically connected to each of the above modules. The device is easy to install and can effectively detect the driver's heart rate, temperature, blood pressure, fatigue and other indicators.

C. Product Highlights

1) Driver Authentication

Face recognition technology is adopted to authenticate the driver. If the authentication is successful, the health indicator detection mode can be activated. If the owner is not driving, enter the temporary driving mode.

2) Real-time Analysis of Health Indicators

Health index detection includes on-board detection and on-road monitoring. Among them, when entering the car, the detection indexes are: temperature, blood pressure, heart rate, fatigue, alcohol; During driving, the monitoring indicators are: heart rate, blood pressure, respiratory rate, fatigue, attention.

Record the long-term health data of car owners, build a health index model through deep learning, and improve the model through the long-term data of car owners, so as to give more accurate suggestions.

3) Instant Partner Rescue

In the era of Internet Plus, every car is connected to the Internet like a mobile phone. In case of emergency, in addition to contacting the insurance company, transportation department and emergency contact person, car owners can also send distress messages to nearby car owners, and other car owners can go to the rescue after receiving the nearby

distress messages. The successful rescue can be rewarded by the platform. This is conducive to improving the efficiency of rescue and reducing the damage caused by the accident.

D. System Architecture

1) Mobile-side

This section is mainly used to provide mobile device-based application services for users. The project uses Android as the development system, Ionic3 as the framework and Cordova as the plug-in.

2) Web-side

This part uses a variety of mainstream front-end programming languages to write web interface and interactive functions, including HTML5, CSS3, Javascript, Ajax, and some development frameworks such as Vue2, ECharts and so on.

3) Server-side

This part mainly uses Java language and is developed based on Spring framework. The database and server use Ali-cloud service, the cloud database uses MongoDB version to store unstructured data, and the files are stored in the cloud server using object storage OSS.

E. System Implementation

Mobile phone application, vehicle-mounted application, web-based management system of this system are shown in the following figures:

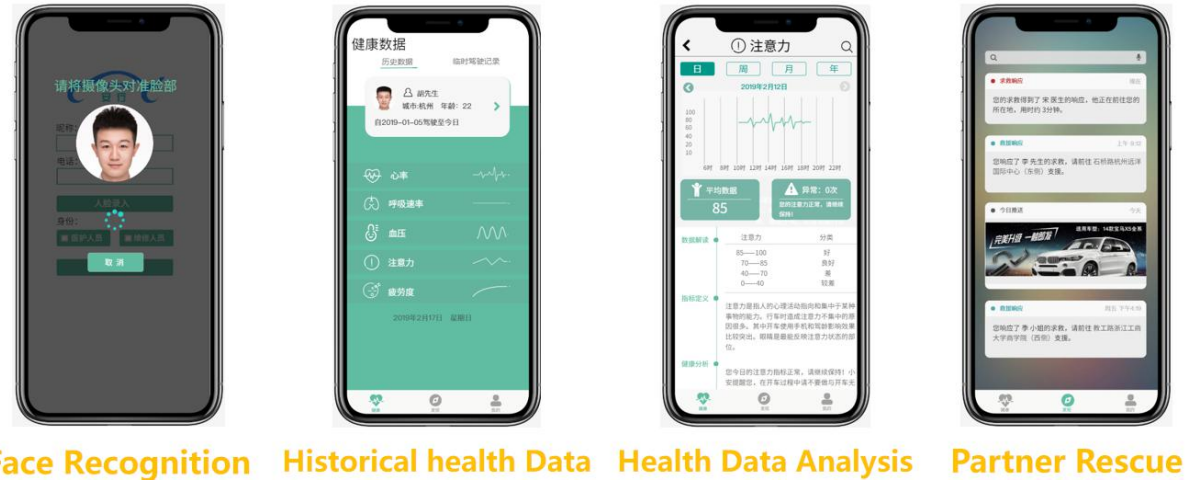

Figure 3. System Implementation -- Mobile Phone Application

Figure 4. System Implementation -- Vehicle-mounted Application

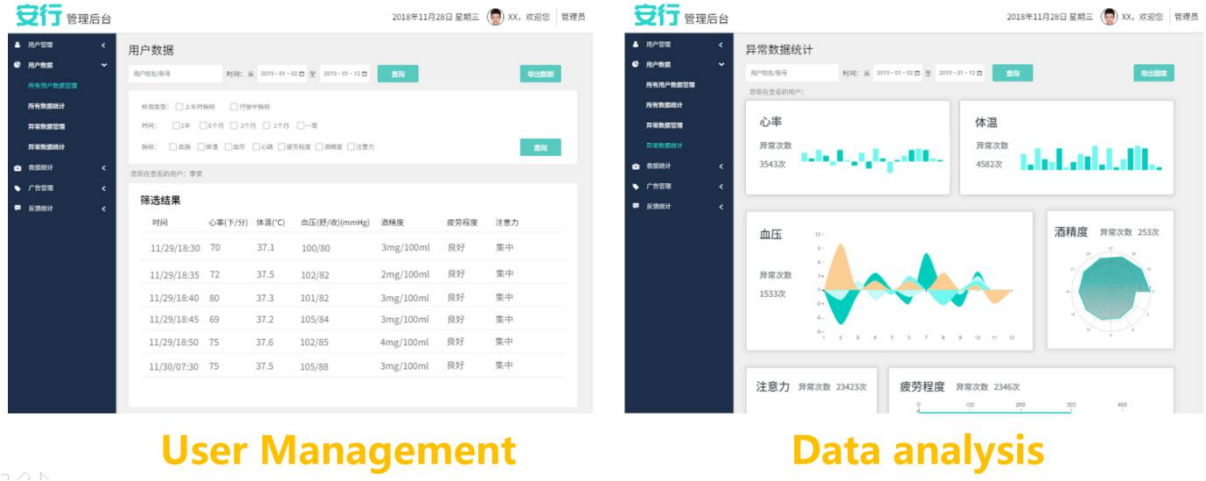

Figure 5. System Implementation -- Web-based Management System

F. Target Audience

The target audience of this product are:

1) Private Car Owners: private car owners over 30 years old who have no time for regular physical examination due to busy work.

2) Automobile Enterprises: automobile enterprises that are interested in purchasing the patent and embedding the system and equipment into the automobile to promote the sales.

G. Project Vision

For car drivers, this product helps them manage physical health and safe driving; For the automobile manufacturer, this product makes the automobile more intelligent, thus promotes car sales; For the government and transportation departments, the popularity of this product will help reduce the traffic accident rate of the city, so as to build a more harmonious and safer city.