

Design of garbage sorting App based on mobile terminal

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Abstract: In order to regulate people's uncivilized garbage throwing behavior, a garbage sorting app based on mobile terminal platform is designed on the basis of smart trash can. The garbage classification APP contains science knowledge, garbage photo identification, garbage classification, integral statistics and exchange four functional modules. This app can recognize garbage images and automatically put garbage into the designated trash can, which has certain durability. The app is a useful complement to garbage sorting.

Keywords: garbage; classification; integral; design

1. INTRODUCTION

With the rapid development of the country, more and more rubbish is produced, both in urban and rural areas. In the face of junk, we often send various types of garbage to the garbage disposal station centralized incineration treatment. This not only pollutes the environment, it is not good for people's health, at the same time is not conducive to waste into treasure. In China, there is no effective classification of recyclable waste, kitchen waste, hazardous waste and other waste. While neighboring Japan, due to resource shortage, they implement strict garbage classification, garbage classification has long been popular. Germany has introduced garbage classification measures earlier in Europe, and issued related garbage classification laws, Germany's garbage recovery rate and utilization are maintained at a higher level.^[1-2]

Currently, Shanghai classifies garbage into four types: recyclable, hazardous, wet and dry garbage. Beijing uses a "four-point method" to separate waste into hazardous waste, recyclables, kitchen waste and other waste. There are more than 2,300 public agencies in Beijing joined the team of garbage, including schools, hospitals, business super and tourist attractions, basically covered in people's concentration, garbage production.

By the end of 2020, 46 key cities in China will have basically completed garbage classification and treatment systems, which can fully meet the demand for household garbage classification and treatment. Carrying out garbage classification can not only relieve the pressure of increasingly tight resources, improve people's living environment, but also meet the requirements of green economic development. Before 2025, the national level and above cities should basically build a garbage classification processing system.

2. FEASIBILITY ANALYSIS OF GARBAGE SORTING APP

The feasibility analysis of APP is mainly discussed from two aspects of technical feasibility analysis and prospect analysis.

(1) Technical feasibility analysis

The key technology of app is the detection technology of the garbage image, the garbage recognition classification algorithm^[3], wireless communication technology. The detection of the garbage image mainly takes the garbage, and uploads the applied garbage image, the system will process the uploaded images. Garbage recognition and classification mainly uses convolutional neural network to train all kinds of garbage and make recognition according to the training results^[4-5]. Wireless communication technology mainly uses wireless networks for transmission.

(2) Prospect feasibility analysis

The trash bubble in public places and residential communities has a clear classification logo, but people's garbage sorting awareness is not strong, coupled with unmanned supervision, and the real effect of garbage classification is not ideal. On the one hand, it is in line with the national environmental protection policy. The country has piloted garbage classification in some cities. In the future, more cities will carry out garbage classification, and garbage classification is imperative. On the other hand, people are used to scanning code with mobile phones, which is efficient and convenient, conforms to people's cognitive habits.

3. FUNCTION MODULE ANALYSIS OF APP

App module design is to make full use of mobile terminal technology to facilitate people's life and enhance people's understanding of garbage classification. When people use the app, first register your personal information and bind individual mobile phone numbers. Each time it is put on garbage, you should first scan the QR code on the trash. The system will identify the garbage image and then give the category of the garbage classification. The garbage bin will be automatically opened, and the garbage will be put into the garbage bin. The system calculates individual points based on the weight of the garbage, and the points automatically add up. The app must be bundled with the bin.

Based on the function of the APP module, the app can be divided into four major modules: (1) Scientific propaganda (2) Garbage image takes a photo (3) Garbage recognition classification (4) Integral statistics and exchange.

Scientific propaganda: promotion of spam classification, which is convenient for the public to know the knowledge of the latest garbage classification, as well as the relevant garbage sorting logo.

Garbage image takes a photo: Use the camera that comes with your mobile phone to take pictures, the app will upload the garbage image to the system and prepare for subsequent classification.

Garbage Category: It is the core module of the app, which automatically classifies garbage by garbage image identification; garbage is divided into recyclable garbage, harmful garbage, kitchen residual garbage, other garbage, people finally put into the garbage can through the sorting mouth. Recyclable garbage mainly includes: clothes, shoes, bedding, bags, hats and other textiles; beverage bottles, cans, books, boxes, newspapers and metals. Hazardous waste mainly includes: rechargeable batteries, button batteries, pesticides (containers), paint (containers), lamps, discarded medical drugs, printing toner and mercury products. Other waste is divided into contaminated and

non-renewable paper, such as toilet paper, diapers and facial tissues; non-renewable living items: disposable appliances, sponges, dilapidated ceramics; other items: cigarette butts, dust, articles of no use value.

Integral statistics: calculate the corresponding integral according to the garbage category;recyclable garbage points range from 1 to 10 points; harmful waste points range from 1 to 7 points; kitchen residual waste points range from 1 to 5 points; other garbage points range from 1 to 3 points. Point exchange: according to personal points

4. APP FUNCTION DESIGN

The interface design of the APP is based on android platform, and MySQL is used as the database. The user table, image table, garbage classification table, and score table are mainly established in the APP database, and different data tables are associated with each other through fields.App realizes page hopping through Web services.

The front-end objects of APP are mainly ordinary users.The object of the APP background is the administrator. The app background mainly includes the administrator login management, garbage classification management and user points management. The functional module diagram of APP is shown in Figure 1.

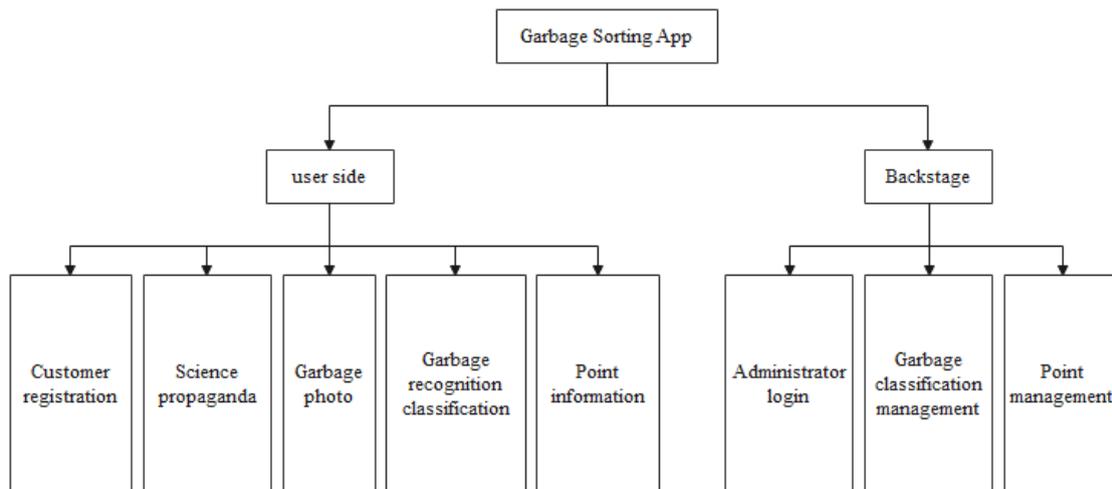


Figure 1: Functional module diagram of APP

5. CONCLUSION

Based on the design of mobile terminal garbage classification app, four functional modules are mainly set up.The mobile garbage classification app fully borrowed from the garbage image identification classification algorithm, strengthens people's garbage classification;the design of garbage classification app based on mobile terminal can effectively solve the trouble of manual garbage classification and improve the efficiency of garbage classification;based on the design of garbage classification app on mobile terminal, points exchange is set up to regulate people to develop good garbage classification habits.At the same time, the app can also carry out propaganda of garbage science knowledge, which plays a propaganda role in garbage classification knowledge.The next step will be the transformation from theoretical verification to practical application. After the actual development of the APP is completed, it will be promoted in the trash cans of the community.

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