A large-scale garbage collection system with a garbage delivery mark device

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Abstract. Based on the investigation of the existing garbage classification methods, a large-scale garbage recycling system with garbage dropping identification device is proposed and developed, which realizes the scientific garbage classification, improves the throwing efficiency, and ensures the accurate pricing of garbage scientific classification, so as to realize the sustainable development mode of human resources and environment.

1. Introduction

With the economic and social development and the substantial improvement of material consumption level, the amount of domestic waste in China is growing rapidly, and the potential environmental hazards are becoming increasingly prominent, which has become a constraint factor for the development of new urbanization [1].

At present, large and medium-sized cities across the country are in full swing to promote waste classification. The traditional mode of garbage classification is to set up garbage bins inside the community or on both sides of the street to let people actively deliver garbage to the corresponding garbage cans, which we call "front-end classification". But this classification model seems simple, but the effect is not ideal. It's really a headache for us to do compulsory classification.

Through a visit to many residential areas in cities at home and abroad, I found that the general public has basic garbage classification awareness and ability, but it is really difficult in the actual implementation process [4-5]. The reason for the difficulties in garbage classification is not the basic quality and morality of the general public, but the following reasons:

1.1. Mismatching of human resources
At present, human beings have created more than 50 billion kinds of products on the earth, and the general public simply can't have the ability to identify such a complex waste classification;

1.2. Mismatch of value
Recyclable waste has resources with reasonable recycling value, while other waste has negative economic value, but it is collected and even transported by users equally and free of charge);

1.3. Mismatch of science and technology
The R & D and investment of science and technology in the waste classification industry have been ignored for a long time, which cannot match the huge economic value and social value of waste recycling [5].

In order to solve the problem of garbage classification that puzzles the society, people are currently studying various garbage classification methods or devices, for example, two patents cn103569551b and cn103578184b that have been authorized in the Chinese patent query system. In order to improve people's awareness of garbage classification, the above two technical solutions have set up points reward exchange mechanism, but people still need to The garbage can be put into different categories or only one time at a time, and their core technical solutions include weighing or identification module, which cannot estimate the value of various garbage, such as a used mobile phone or charger; secondly, the volume of the box used for recycling is limited, which cannot match the current working and living ring.

In addition, the reward mechanism of the existing garbage classification and recycling methods is usually non cash bonus, which can exchange the corresponding products, such as washing powder, soap, etc., but the reward exchange process is cumbersome and has a large deviation from the actual value of garbage, so it is difficult to implement large-scale standardization Therefore, the above two waste classification methods have limitations, and it is difficult to carry out the real large-scale implementation.

2. System introduction

In view of the defects in the existing domestic and foreign garbage collection systems, we have developed a large-scale standardized systematic garbage collection system with garbage delivery identification device, which can effectively solve the current severe resource and environmental problems.

The garbage collection system uses a container as a garbage collection device, and the side of the garbage collection device is provided with one or more delivery openings, and the garbage collection device is also provided with a label generation device, which is used to generate an identification code and then bind the payee's collection information through the identification code.

When in use, the thrower marks the garbage through the tag provided by the tag generation device, and then puts it into the garbage collection device from the dropping port. After the garbage is recycled, the recycler identifies the thrower by reading the tag, so that the thrower gets the corresponding reward.

3. System workflow

The specific process of the system is as follows:

3.1. The issuer scans the information collection code on the garbage collection device through the mobile terminal (usually the mobile phone), and the mobile terminal sends instructions to the identification code generation unit through the cloud server, so that the identification code generation unit prints or provides a unique corresponding code label with the information collection code.

3.2. The recycler uses the tag generation device to obtain the collection information of the issuer. The tag generation device generates a code label corresponding to the collection information, and the issuer pastes the code label on the outside of the packaged garbage bag or garbage box;

3.3. The thrower puts the garbage bag or garbage box into the garbage collection device through the thrower;

3.4. After the garbage in the garbage collection device is full, the garbage bag or garbage box in the garbage collection device is transported to the garbage sorting workshop by the transport vehicle for manual sorting;

3.5. After the sorter identifies the identification code on the garbage bag or garbage box put by the thrower, the sorter separately classifies and measures the garbage unpacking in the bag or garbage box, calculates the price, and then enters the corresponding amount into the thrower's collection account.
4. Conclusion

The garbage sorting and recycling device adopts a container as a box body, which has the following advantages:

4.1. Container is the transport carrier of international unified standard bulk materials, with large quantity and mature transport system, which is suitable for global large-scale deployment.

4.2. The container can be moved, which successfully solves the pain point of the harsh conditions of the traditional recycling device site;

4.3. The design standard of container is scientific and reasonable, which is superior to other existing recycling devices in terms of fire prevention, waterproof, anti-theft, shockproof and anti-corrosion;

4.4. The internal space of container is large. Take the 40-foot-high container, which is most commonly used nowadays, as an example, its internal space is more than 67 cubic meters, its structure is solid and durable, and it usually has a service life of more than 30 years. Using container as the recycling carrier provides the possibility to solve the severe environmental waste problem on a large scale.

In addition, the system will transform the headache of garbage "front-end classification" into garbage "back-end classification". After the garbage is transported to the garbage sorting operation workshop, it will be classified manually, and professional people will do professional things, so as to ensure the scientific classification of garbage. At the same time, the container as the recycling device will not be equipped with garbage weighing or garbage identification module, which can not only simplify the delivery flow of the thrower.

In addition, the system uses the currently widely used convenient electronic payment as a tool, so that the investors can get real and reasonable remuneration, and the recyclers also have operating profits, so as to realize the sustainable development mode of sound science of human resources and environment [2-3].

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