Takeout garbage recycling system

Liwei Yang[*], Mengyi Feng, Qi Chen, Qinling Du

School of Mathematical Sciences, Chongqing Normal University, Chongqing, 401331, China

*Corresponding author

Abstract: In order to solve the problem of classified recycling of takeout garbage, this paper puts forward a set of takeout garbage recycling scheme for college students. This product specially designs a "water bucket" - separating food residues, "box bucket" and "chopstick bucket" for reasonable classification and recycling, truly practicing the concept of environmental protection, and making waste classification more intelligent and standardized. The designed "water bucket" uses gravity induction system to separate food residues from lunch boxes, and collects the separated food residues with environmental protection materials to prevent leakage and peculiar smell. By using this scheme, the waste classification process is standardized to a certain extent, so as to achieve the purpose of environmental protection.

1. Background

With the popularity of "Internet +" takeout platform, the development prospect of takeout industry is getting better and better, but various social problems caused by a large number of takeout are becoming more and more serious. Kitchen waste and lunch boxes are often mixed and discarded, which makes it difficult to carry out garbage classification and recycling, and lunch boxes and plastics can not be reused. In addition, most disposable lunch boxes are composed of high molecular compounds such as polystyrene and ethylene, which are difficult to degrade. If not properly treated, they may pollute soil and water sources.

In order to solve the problem of sorting and recycling of takeout garbage, this paper puts forward and designs a set of takeout garbage recycling scheme for college students, standardizes the waste classification process to a certain extent, and does its part to build a green campus and even a green China.

2. Introduction

The garbage recycling product proposed and designed in this paper is called "Recovery". It is a public welfare product for garbage recycling and classification, which is different from the traditional garbage can. It focuses on solving the problems of environmental pollution caused by takeout garbage and express garbage and the difficulty of recycling lunch boxes caused by food residues. " Recovery " the classified treatment of garbage is different from the ordinary garbage cans on the market. The "water bucket" designed by us uses the gravity sensing system to separate the food residue from the lunch box, and collects the separated food residue with environmental protection materials to prevent

leakage and peculiar smell. Then, the Internet plus will be used to make corresponding punching devices, record users' participation records, recruit volunteers to supervise and maintain the implementation of garbage classification, and set up incentive mechanisms such as the right to use the takeaway counter, the daily attendance of volunteers and the extra moral points, so as to attract more users and volunteers to participate in the garbage classification.

3. Technical analysis

"Recovery - take away recycling public welfare products" is divided into three technical parts:

1. Clock in system: use the wechat applet "received", and each time the garbage is reasonably classified, the App program will automatically record that the punch in is successful once.

2. Trash can system: the trash can is divided into "water bucket" - to deal with food residues (specific mouth for food residues), "box bucket" - to deal with plastic wastes such as takeout boxes and packaging paper, "chopsticks bucket" - to deal with garbage such as wooden chopsticks, "paper bucket" - to collect express cartons.

3. Takeout storage box: takeout storage cabinet, which can be used for takeout storage by activating the campus card by students. The takeout storage cabinet is open for a long time. After putting in the takeout, the takeout clerk closes the takeout cabinet and sends out the collection code, and then the students take out the takeout through the collection code.

4. Functional module

"Water bucket" - dispose of food residue (specific inlet for food residue). This paper focuses on the gravity sensor, conversion module and the structure of "water bucket". It opens the garbage can cover through NFC contact, uses the gravity of food residue to transmit the pressure to the gravity sensor, the digital quantity of the gravity sensor is input to the conversion module, and finally transmitted to the PC end to record the success of punch in, and uses the mechanical device to close the garbage can cover. Users who punch in successfully can get points and exchange for prizes.
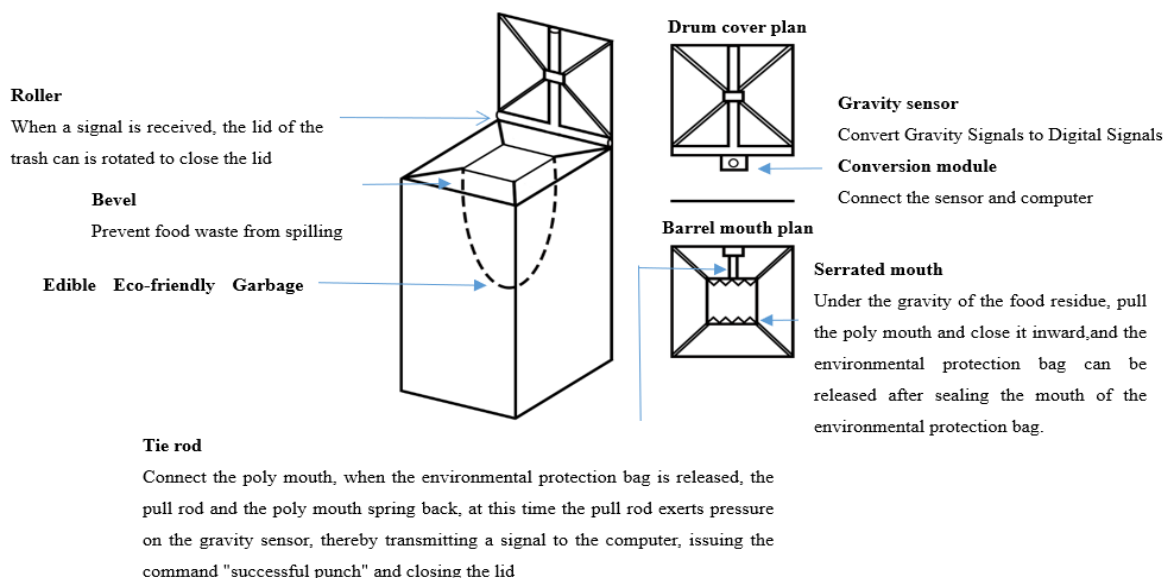

Figure 1: Structural diagram of "water bucket"

(1) "Water bucket" structure

Through the design of the simulation model of the "water bucket" (the garbage can for collecting

food residues explained above) punch in device. This design realizes the opening of the garbage can cover through NFC contact, uses the gravity of food residue to transmit the pressure to the gravity sensor, the digital quantity of the gravity sensor is input to the conversion module, and finally transmitted to the PC end to record the success of punch in, and uses the mechanical device to close the garbage can cover.

(2) Gravity sensor

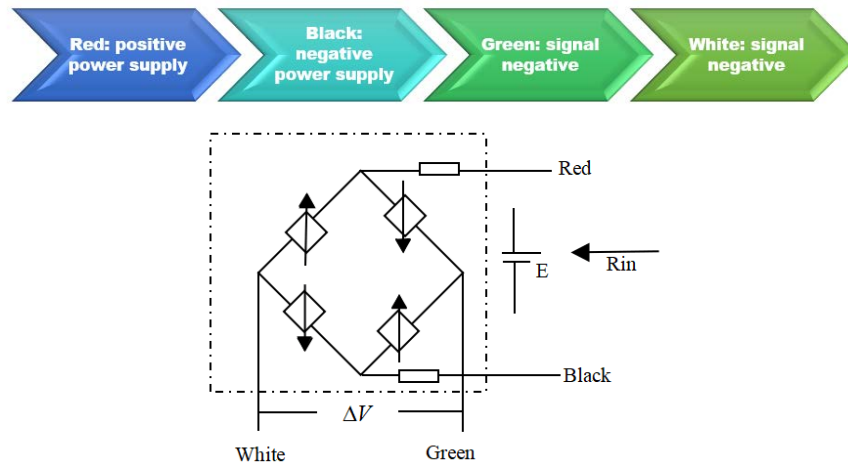Gravity sensor is built in the water bucket, and its internal design is as follows:

Figure 2: Internal design of gravity sensor

The working principle of gravity sensor is to convert the pressure signal into digital signal. The specific conversion diagram is as follows:
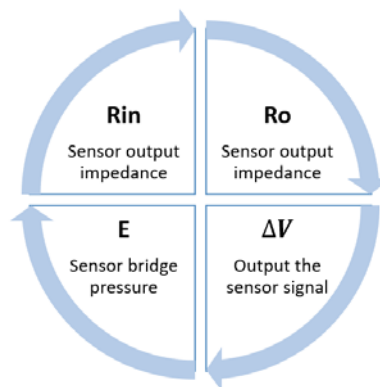

Figure 3: Signal conversion diagram

5. Summary and promotion

The product designed in this paper has certain innovation. According to the demand of waste classification and recycling, it is different from the ordinary garbage cans on the market in the past. This product has specially designed a "water bucket" - separating food residues, "box bucket" and "chopsticks bucket" for reasonable classification and recycling, making a more practical and environmental protection transformation of the garbage can, and truly practicing the concept of environmental protection. And make waste classification more intelligent and standardized.

1. Environmental protection, reasonable classification of takeout garbage, not only reduce environmental pollution, but also achieve multiple utilization of resources.

2. Intelligence. This product combines the punch in system and intelligent trash can to achieve intelligent recording and processing.

3. Universality. Since the classification of takeout garbage has never been reasonably improved, but the trend of ordering takeout is increasing year by year, takeout garbage recycling is an inevitable problem. Therefore, it is bound to become a trend to implement more "take it" public welfare.

4. Innovative. This paper makes innovation in the design of waste recycling bin, and makes a more practical and environmental protection transformation of waste bin.

References

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