

• Article •

A touchless lid-opening trash can

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Abstract: This article shares the application and impact of a touchless lid-opening trash can in daily life. The trash can achieves touchless lid opening and closing, not only enhancing the hygiene level of waste disposal but also bringing significant changes in daily habits, public health maintenance, and promotion of environmental conservation concepts. The article also analyzes the research progress of touchless lid-opening trash cans in the academic field and future development directions, emphasizing their important role in promoting technological innovation and the development of environmental protection initiatives.

Keywords: Touchless lid-opening trash can; hygiene habits; public health; environmental conservation concepts

Children, did you know? There's a very magical and interesting trash can now that we don't need to touch with our hands to open. Its lid can open automatically, which is very convenient and hygienic! This kind of trash can is called a "touchless lid-opening trash can", and it can help us better sort our garbage and protect our environment.

This special trash can is equipped with a very sensitive "eye", just like the "ghost" we play hide-and-seek with, which can quickly detect approaching people. When we approach the trash can with garbage in hand, this "eye" immediately notices us and tells the "brain" of the trash can: "Quick, open the lid and let the garbage in!" Then, the lid of the trash can obediently opens automatically, and after we throw the garbage in, the lid closes again. You must be curious about how this "eye" works, right? Actually, it's a device called a "sensor", just like our eyes, capable of sensing the surrounding environment. This sensor can be an infrared sensor or a microwave sensor, emitting a special light or wave. When someone approaches, this light or wave reflects back, and the sensor knows that someone is coming.



The sensor of the touchless lid-opening trash can is very sensitive, capable of accurately detecting human movement and distance. When we approach the trash can at a certain distance, the sensor immediately sends a signal to the control system of the trash can: "Someone is coming, get ready to open the lid!" Upon receiving the signal, the control system activates the motor or other mechanical devices, causing the lid to open automatically. The entire process is very fast, usually completed within 1 second. After we throw the garbage in, the sensor continues to monitor the surroundings. If no activity is detected for a period of time, the control system will determine that we have left and then automatically close the lid. This way, the trash can can always remain closed, preventing odor emission and bacteria growth.

In addition to automatic lid opening, this type of trash can has many other advantages. For example, its lid has excellent sealing properties, effectively preventing the emission of unpleasant odors from the garbage. This is because the trash can adopts a special sealing design, with a soft rubber strip between the lid and the body of the can, which can tightly seal together without leaving any gaps. Meanwhile, the material of the trash can is carefully selected, generally using high-strength antibacterial plastic or stainless steel, with a smooth and easy-to-clean surface, not easy to breed bacteria.

Another benefit of the touchless design is that it can prevent the spread of bacteria and viruses through contact. Traditional trash cans require the lid to be opened by hand, which can easily transfer bacteria from the hands to the lid, potentially infecting the next person to use the trash can. Touchless trash cans avoid this situation, making them more hygienic and safe to use. This is particularly important in public places such as hospitals, restaurants, and schools, where it can effectively reduce the risk of disease transmission.

Do you know? Using this kind of trash can has many other benefits for our lives. First of all, it makes throwing away garbage a clean and hygienic task, without worrying about getting our hands dirty. Previously, we always had to be careful when opening the lid to throw away garbage, fearing that we might get something dirty on our hands. Now with touchless trash cans, we can easily throw away garbage without worrying about any contamination.

Secondly, the design of automatic lid opening makes garbage sorting more convenient. Many touchless trash cans have multiple disposal openings, each corresponding to different types of garbage,

such as recyclables, kitchen waste, hazardous waste, etc. We just need to follow the labels and throw the garbage into the corresponding opening. Some trash cans even come with intelligent recognition systems that can automatically distinguish the type of garbage and remind us to dispose of it correctly. This way, we can easily develop the good habit of garbage sorting and contribute to the cause of environmental protection.



Children, now you know the wonders of touchless lid-opening trash cans and understand their important role in our lives. Let's take action together, starting from small things around us, and support the cause of environmental protection with practical actions. Remember to sort the garbage according to its type and make the most of the trash cans. If conditions allow, you can also discuss with your parents about purchasing a touchless trash can for your home, so that the whole family can join the ranks of garbage sorting.

Let's work together to create a cleaner and better world! I believe that through everyone's joint efforts, we can make touchless lid-opening trash cans a beautiful scenery in our lives and make garbage sorting a fashion, a habit. Let's start from today, start from ourselves, and interpret what environmental protection and civilization mean with practical actions. I believe that as long as each of us contributes our share, we can create a better tomorrow!

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Conflicts of Interest

The authors declare that they have no conflicts of interest to report regarding the present study.

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