

Survey Paper on ‘Smart Dustbin Management System’

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ABSTRACT

In past few years population has been increased highly because of that there is very much increase in waste production due to which pollution is also increased and spread foul smell. That's why waste management is one of the important issues to be considered in society. For this we are developing the smart dustbin to overcome on this problem. In this dustbin by using sensors we are going to separate dry and wet garbage. Once if these Smart Dustbins are implemented in society at higher level on proper space then the problem of foul smell and uncleanliness will solve. It will be fruitful for us to replace the traditional dust bins and on that place use smart dustbins. Due to the Smart Dustbin environment will remain clean and proper waste disposal will take place.

Keywords: *Smart dustbin system, moisture sensor, ultrasonic sensor, arduino sensor*

INTRODUCTION

Previous year's garbage disposal has become a huge cause to dispose as people dispose garbage anywhere without any concern in the world. A huge amount of waste has been disposed and which can have adverse effect on environment. In the recent times the waste has been disposed anywhere such as in the open ground or it is also dumped on the landfill sites. And the illegal method of dumping the waste anywhere can be injurious to the health of people, plant and also as well as animal life. It can also contaminate ground water, surface and which can spread harmful diseases and can degrade aesthetic value of the natural environment and it is improper use of land resources.

So, to avoid all the problems we are implementing Smart Dustbin System which is cheap and also easy to use for segregation of wet and dry garbage. As in today's world many diseases spread because of improper disposal of waste and for this we have implemented this dustbin

which can separate wet and dry waste so that it can directly sent for processing. It is designed to separate wet and dry waste. For the separation of waste, we have used various sensors which can be used to detect the dry and wet waste and so that proper disposal of waste takes place. Now a days, waste is the one which grows with the growth of the country. Separation of waste is important for proper disposal of vast amount of waste. The proper disposal can also be helpful for recycling as dry waste have to be recycled and this dustbin would be useful for it as it separates the waste. The benefits of the smart dustbin are that the higher quantity of material is retained for recycling which means that the more value can be recovered from the waste. So the Smart Dustbin System is very useful and helpful system for us in our day to day life.

PROBLEM DEFINITION

To design system “Smart Dustbin” which provide the solution to society against garbage i.e. to separate wet and dry

garbage to avoid diseases in real world. There are many problems in real world regarding garbage. We tried to solve above problem by developing system. This system is made to avoid diseases and minimize human resources. A system can be developed that can be easily understand by user. We are trying to avoid contamination of the dry waste by the wet wastes.

Waste segregation refers to the separation of wet waste and dry waste, the purpose is to recycle dry waste easily and to use wet waste as compost. When we segregate waste, there is reduction of waste that gets landfilled and occupies space, air and water pollution rates are considerably lowered.

NEED OF SMART DUSTBIN SYSTEM

To separate wet and dry waste- It is necessary to separate wet and dry waste as because the wet and dry waste together spread very foul smell and which can be unconscious to health. It can also spread many diseases as many mosquitoes also take place because of it.

To avoid pollution- Wet and dry garbage should be disposed separately as it is harmful to our environment and disposal

of the wet and dry garbage separately can be useful to avoid pollution.

To help recycling dry waste- The disposal of wet waste and dry waste separately can be useful to recycle the dry waste easily.

Auto sensor detection system to separate waste-Auto sensor detection system is useful to separate waste is because of the sensor we can detect the dry and wet waste and can separate them easily.

To keep environment clean- The segregation of wet and dry waste can be useful to keep the environment clean.

EXISTING SYSTEM

In the existing system the disposal of waste was not in proper way as it is disposed anywhere on the landfill area, open ground. Because of improper disposal much foul smell take place and it can also harm the environment. Due to the existing system the waste is not proper disposed due to which very much pollution takes place and also spread diseases. In existing system, the wet and dry garbage are mixed together and due to this drawback the waste is not recycled properly and decomposition is also not done properly.

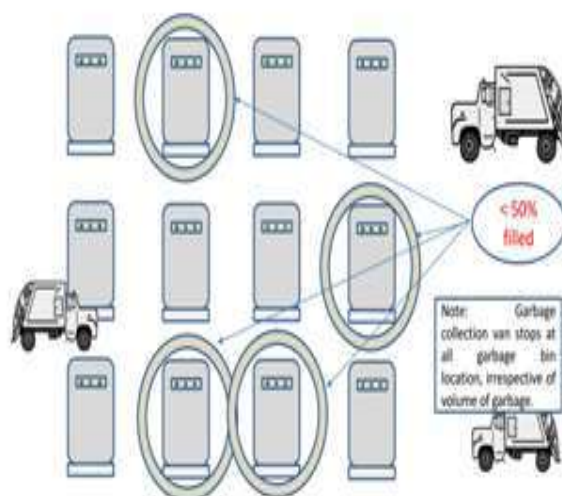


Fig.1: Existing system

PROPOSED SYSTEM

In proposed System the automatic separation of waste takes place with the help of sensors. It can separate the wet and dry waste with help of moisture sensor. In this new smart dustbin, the garbage will be put on arm which is located at top of the dustbin at the middle position. And then the moisture sensor will check whether the waste is wet or dry and then it will send the response to the arm. And then arm will lift the garbage in the responded section of the dustbin. By this method we are going to separate the wet and dry garbage using new technology. It will keep the environment clean and pollution free.

In this new proposed system with advance technology which will be beneficial for environment and society. Due to which proper disposal and recycling process will take place properly. And various types of pollution will not take place. This new proposed system is very much helpful to the society for the purpose of cleanliness.

ADVANTAGES

Auto detection system: In auto detection system the waste is separated automatically with the help of sensor and the level and wet and dry waste is detected automatically and separated.

Proper recycling: Because of segregation of waste means the separation of wet and dry waste proper recycling of dry and wet waste is recycled properly

Reduces environmental pollution: Because of this smart dustbin system, it reduces environmental pollution as it is helpful to separate the waste easily and reduce the pollution because of it.

Provide great accessibility to dustbin: This dustbin provides great accessibility of to the dustbin as it is kept throughout i.e. in every areas to throw the garbage.

Clean environment: This system will keep the environment clean and disease free.

DISADVANTAGES OF EXISTING SYSTEM

Mix garbage: In the existing system the garbage is thrown in the same dustbin i.e. the wet and dry waste is not disposed properly and so to avoid this smart dustbin system is prepared.

Foul smell: because of the improper disposal of waste the foul smell of the garbage is spread throughout and because of it many diseases occurs. And to avoid these smart dustbins are developed.

No separation of wet and dry waste: In the existing system both the waste means dry and wet waste is not disposed properly that means it is thrown in one dustbin and to avoid this smart dustbin system is developed.

Spread diseases: wet and dry waste is thrown in same dustbin and it can spread diseases so this new technology which is being prepared will reduce the spreading of the disease.

REQUIREMENT SPECIFICATION**Hardware****Ultrasonic Sensor**

- Ultrasonic sensor is non-contact distance measurement module, which is also compatible with electronic brick.
- Supply voltage 5 v Global Current Consumption 15 mA
- Output response time– Standard models:45ms(fast);105ms(slow).

Moisture Sensor

- Battery type : CR2450 x1
Battery life : 3years (typical)
Range : 700ft (210m) line of sight (at default setting.)
Moisture : 0~100%, 8-bit

Arduio sensor

- a. Operating Voltage : 5v
- b. Recommended Input Voltage:7-12V
- c. Input Voltage Limits:6-20V

DustBin

- a. Height: 35-40cm
- b. Material: HardThick Box

Software***Arduio s/w:***

- a. Microcontroller: ATmega328P.
- b. Operating Voltage: 5V.
- c. Input Voltage (recommended): 7-12V.
- d. Inout Voltage (limit): 6-20V.

CONCLUSIONS

As the system name suggests the Smart Dustbin it manages to separate the dry and wet waste garbage. This system will manage the proper disposal of waste and will keep the environment clean. By using the moisture sensor it will test that weather the garbage is wet or dry. And then after the detection the arm will lift the garbage in the responded side that will be wet or dry. The detection of garbage of Smart Dustbin depends on moisture sensor. And as it keeps the environment clean then in its own way they are Smart Bins.

ACKNOWLEDGEMENT

The project which we have selected 'Smart Dustbin System' is very useful and beneficial project. This system can be helpful as it protect us from harmful diseases. The aim of this project is to segregate wet and dry waste to avoid foul

smell and diseases and also to keep our environment clean. This system is very beneficial as we can recycle wet waste easily.

In the existing system both the waste means dry and wet waste is not disposed properly that means it is thrown in one dustbin and to avoid this smart dustbin system is developed.

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