Automatic Dry and Wet Waste Separation

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Abstract— Rapid increase in volume and types of solid and hazardous waste due to continuous economic growth, urbanization and industrialization, is becoming a burgeoning problem for national and local governments to ensure effective and sustainable management of waste. It is estimated that in 2006 the total amount of municipal solid waste generated globally reached 2.02 billion tones, representing a 7% annual increase since 2003 (Global Waste Management Market Report 2007). The segregation, handling, transport, and disposal of waste needs to be properly managed to minimize the risk to the health and safety of patients, the public, and the environment. The economic value of waste is best realized when it is segregated. Currently, there is no such system of segregation of dry, wet and metallic wastes at the household level. This paper proposes an Automated Waste Segregator (AWS) which is a cheap, easy to use solution for a segregation system for household use, so that it can be sent directly for processing.

Key words: Dry Waste and Wet Waste

I. INTRODUCTION

Waste disposal is a huge cause for concern in the present world. The disposal method of a voluminous amount of generated waste has had an adverse effect on the environment. Unplanned open dumping at landfill sites made by municipal is a common method of disposal of waste. Human health, plant and animal life are affected due to this method.

The harmful method used for waste disposal generates harmful chemicals which contaminate surface and groundwater. It can give rise to disease vectors which spread harmful diseases. This also degrades the aesthetic value of natural environment can degrade the aesthetic value of the natural environment and it is an unavailing use of land resources.

In India, rag pickers play an important role in the recycling of urban solid waste. Rag pickers and conservancy staff have higher morbidity due to infections of the skin, respiratory, gastrointestinal tract and multisystem allergic disorders, in addition to a high prevalence of bites of rodents, dogs and other vermin. Dependency on the rag-pickers can be diminished if segregation takes place at the source of municipal waste generation.

II. OBJECTIVES

The main sources of waste are industrial and domestic waste. This project mainly concentrates on domestic waste whose value is unrecognized since people don't spend time on segregating waste into their basic streams. The wet waste generated can be used to generate biogas, metallic and dry waste can be send for recycling, if metallic waste is left untreated then it becomes a threat to animal and plant lives. If waste is separated at household level then they can be directly sent for recycling instead of sending them to industries first for segregation which becomes a huge task and the waste does not get segregated accurately. The methods adopted for waste segregation in industries is hazardous to human health since it makes use of x-rays and infrared rays. The environmental risks associated with poor waste management are well known and understood. The main aim of the project is to segregate waste at source level to wet, dry and metallic such that waste is not wasted but there value is understood and can be converted to a source of energy, in a cost effective way.

III. METHOD

Waste is collected at its source in each area and separated. The way that waste is sorted must reflect local disposal systems. The following categories are common.

1) PAPER
2) CARDBOARD
3) GLASS
4) Plastics
5) Textiles
6) Wood, leather, rubber
7) Scrap metal
8) Compost
9) Special/hazardous waste
10) Residual waste

IV. ADVANTAGES

1) Inlet section can be incorporated with a crusher mechanism to reduce the size of the incoming waste.
2) Inlet section can also be integrated with a blower mechanism to dehumidify the waste input in the system.
3) Provisions can be made for on spot decomposition of wet waste.
4) GSM contraption to intimate to the nearest industry to use the metals collected.
5) Plastics can be segregated from the collected dry waste and also be processed based on their types , grades and colors. Thus further separation of dry waste can also be done.

V. APPLICATION

1) Basically it is used for collecting the garbage from any where in open system
2) School ground & collage canteen
3) On road
4) Society compound

VI. CONCLUSION

The importance of waste segregation in the world cannot be understated. Waste Segregation is the first step in a compliant waste management plan that will help the save the environment and improve the quality of the atmosphere we live in. It really does matter which bin you put the garbage into.

VII. FUTURE SCOPE

In simple terms, waste segregation is the separation of wet waste and dry waste. The generation of waste is unavoidable, and the materials carried in this waste impacts human and environmental health. Naturally, waste management is something that must be carried out, and one way to do this meticulous segregation of wet and dry waste, so that dry waste can be recycled and wet waste can be composted.

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